ForesTalk

RESOURCE MAGAZINE SUMMER 1979

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ForesTalk

Volume 3 Number 2 Summer 1979

Editor: **Garth Coward**
Assistant Editor: **Cameron Young**
Design: **Ken Seabrook**

ForesTalk Resource Magazine is published quarterly by the Province of British Columbia, Ministry of Forests, Information Services, 1450 Government Street, Victoria, B.C. V8W 3E7. Telephone (604) 387-5985. Designed to encourage interest, discussion and understanding of British Columbia's forest resources, ForesTalk is available free on request. Any material reprinted must give credit to the magazine. Second class mailing registration No. 3863. International Standard Serial Number ISSN 0700-1770. ForesTalk welcomes submissions from professional writers and photographers on themes related to the B.C. forests and their uses. Address enquiries to the assistant editor.

Deputy Minister of Forests:
T.M. Apsey
Director of Information Services:
E.H. Lyons

The Ministry of Forests is committed to a comprehensive reforestation program to ensure that our forests continue to supply the people of B.C. with its most important renewable resource.

As the lead article in this issue of ForesTalk illustrates, establishing new tree growth on logged forest land involves a number of complex, detailed and precise silvicultural practices. Every effort is made to ensure that there is no weak link in the reforestation chain.

In the near future, the benefits of research into improving the quality of trees being planted will pay off in even higher quality new forests.

Tom Waterland

Hon. Tom Waterland, *Minister of Forests*

Province of British Columbia — Ministry of Forests

As early as January on the coast or as late as June in the interior, tree planters throughout B.C. work their way across hillsides and valley bottoms wielding shovels, mattocks or dibbles as they go about the business of renewing the province's most important resource. The cover drawing by Vancouver illustrator Bob Banks attests to the dedication, skill and plain hard work that goes into the job of planting trees.

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As the lead article in this issue of ForesTalk illustrates, establishing new tree growth on logged-over land involves a number of complex, detailed and precisely timed cultural practices. Every effort is made to ensure that the seedlings we plant in the reforestation program will grow into the healthiest, most productive trees possible. In the meantime, the benefits of research aimed at improving the quality of tree planting will pay off in even higher quality new forests.

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PHOTO: RICHARD WRIGHT

NEW WAVES
IN RESOURCE MANAGEMENT

by Richard Thomas Wright

British Columbia is experiencing an unprecedented interest in the recreational use of its rivers. Addictive and contagious, this growing public fascination with our waterways also carries with it the possibility of overuse and abuse. Richard Wright examines this new management challenge facing the Ministry of Forests and other resource agencies sharing administrative responsibility for our province's rivers.

Each year the number of people seeking out the pleasure and excitement of B.C.'s rivers continues to expand. If the growth pattern in recreational river use continues unabated for the next five years, the danger of overcrowding will require that some type of river management policy be developed.

There are those who may remember when canoes were used mainly by traders, trappers and natives. Today, it is estimated that there are over 150,000 recreational paddlers in the province. In 1973 the first commercial raft trips were run in B.C.; in 1979 the River Outfitters Association of B.C. estimates that over 7,000 people will run river trips in B.C. Add the large number of riverboaters, houseboaters, powerboaters or anglers who use our rivers, along with those people who simply like to see a free-flowing stream from a trail or roadside, and the extent of recreational river use in B.C. begins to come into focus.

The bulk of recreational river traffic is on the Fraser, Thompson and Chilcotin. The Fraser's Hell's Gate section receives the highest use, followed by that part of the Thompson running from Savona to Lytton through the exciting Pitquah Gorge. The mainstream of the Fraser from Soda Creek to Yale is the next most travelled route, while the Chilcotin receives moderate use from commercial rafters. The Chilliwack is frequently used by kayakers and rafters, as are several other small, fast-flowing streams located near population centres. The Stikine in northern B.C. running through Spatzizi Provincial Park is also becoming popular, and each year the number of people seeking out the pleasure and excitement of travelling B.C.'s rivers continues to expand.

If the growth pattern in river use continues unabated for the next five years, the danger of overcrowding will require that some type of river management policy be developed. But the process will be a complicated one, as no single resource agency is responsible for overseeing B.C.'s rivers. While it is generally agreed that the federal government has control of the surface of most rivers (as they are navigable waterways), administration of the shoreline is much more confused. Any one river might flow through land controlled, managed or owned by: the Ministry of Forests; the Ministry of Agriculture; the Ministry of Lands, Parks and Housing; the Fish and Wildlife Branch; the Water Resources Branch; Indian Affairs; municipalities; regional districts; dyking commissions; waterboards; the B.C. Hydro and Power Authority; logging companies or private land owners. In addition, there are those who, although holding no tenure to shorelines, feel an involvement with rivers. These are the conservation groups, river outfitters and many other river-using organizations. Clearly, working out a river management policy is going to pose unique and difficult problems to resource managers and require innovative and creative solutions.

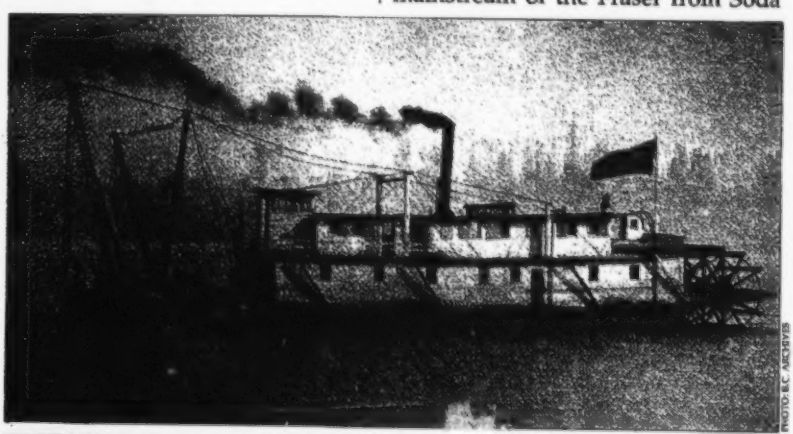

PHOTO B.C. ARCHIVES

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Rivers were B.C.'s first highways and B.C.'s first inhabitants used canoes as their main means of transportation. The 1858 gold rush opened the door to settlement and development, and miners travelled up and down the Fraser, Thompson, Stuart, Peace and Bowron in a variety of craft ranging from dugout canoes and log rafts to the stately sternwheelers that followed. These river queens plied the waterways until the early 1920s when the last of them were drowned in canyon accidents or beached.

The Source of the Issue

For almost one hundred years following Alexander Mackenzie's 1793 foray into what is now British Columbia, fur was the economic reason for the colony's existence and rivers were the main means of transportation. Later, declining fur returns and the gold rush of 1858 opened the door for settlement and development, but rivers continued to be as important as ever. Miners travelled up and down the Fraser, Thompson, Stuart, Peace and Bowron in a variety of craft ranging from dugout canoes and log rafts to the stately sternwheelers that followed. These river queens plied the rivers (and even co-existed with the early railways) until the early 1920s, when the last of them were drowned in canyon accidents or beached.

With the disappearance of sternwheelers and the end of the gold rush, the province's rivers, with few exceptions, ceased to be main arteries of transportation. They became the back-door route, the forgotten highway, the convenient sewer for industrial and human effluent.

Although people used rivers less during the first half of this century, man's impact on the river environment became more severe. As well as using the running water as a convenient flushing device, we began the construction of numerous hydroelectric and flood control dams which, while providing an inexpensive

source of energy, from a river user's point of view destroyed forever certain rivers and their valleys.

Following the Second World War there was an increased recognition of the recreational potential of rivers, a trend that first became evident in densely populated areas of the United States. In 1973 more people floated the Colorado River than in the 100 years from 1869 to 1970. In Westwater Canyon alone, use jumped from 750 in 1972 to 3,800 in 1973. That same year over 75,000 people floated stretches of the Snake River in Grand Teton National Park. On the Stanislaus River in California, 31,800 people ran on commercial trips. In B.C., 1973 saw the arrival of its first river outfitters. There are now nine such groups in the province.

Current Planning Trends

Although there has been some minor misuse of B.C.'s rivers by recreationists, the problem of serious overuse which afflicts U.S. rivers has not yet hit B.C. But how long this situation will be maintained is a matter of some debate. Some river users expect that over the next five years there will be an increase in river use similar to that in the U.S. They also feel that because such a large number of resource agencies are involved in different aspects of river management, no one agency is fully cognizant of present river use in B.C. Various resource managers, for their part, feel that river use is something to be watched closely but not acted on too hastily.

Harry Drage, recreational forester

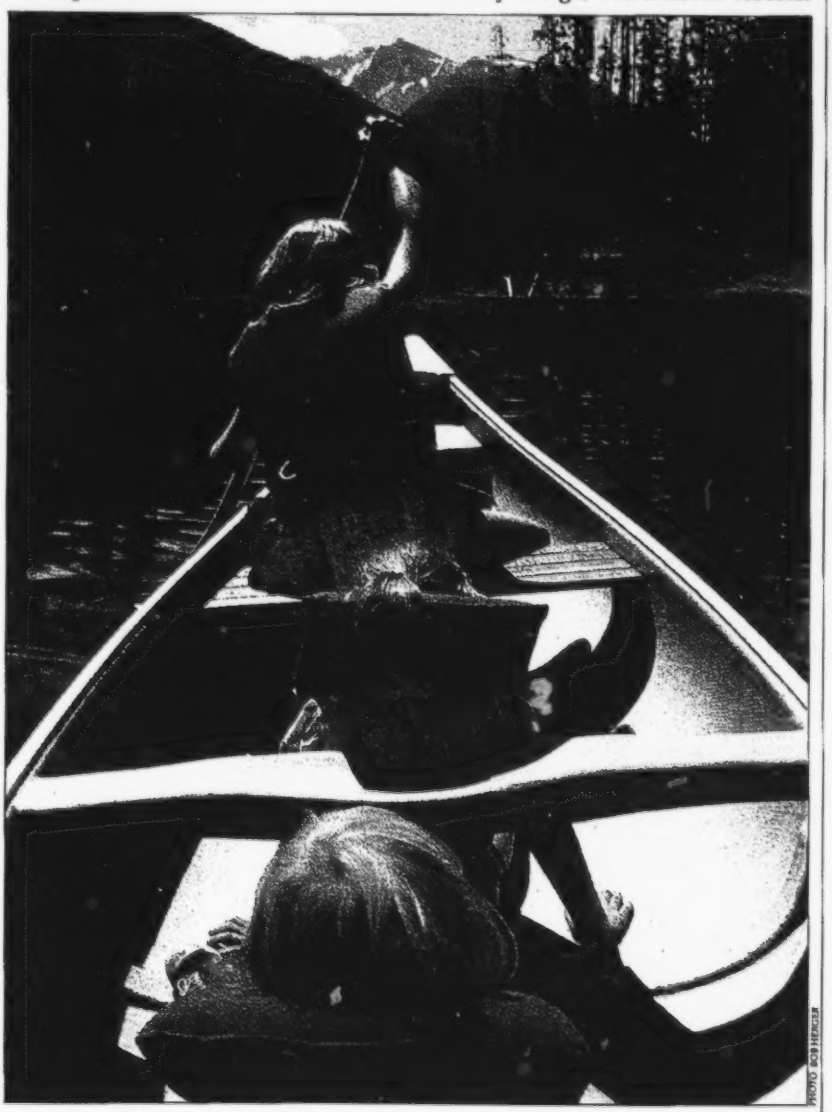


PHOTO BOB HERCUS

PHOTO M. VICA

With the disappearance of sternwheelers and the end of the gold rush the province's rivers ceased to be main arteries of transportation. They became the forgotten highway, the convenient sewer for industrial and human effluent.

Following the Second World War rivers became recognized for a new use – recreation. Today, river rafters, riverboaters, powerboaters, anglers, and people who simply like to see a free-flowing stream from a trail or roadside are making more and more use of B.C.'s river resources.

We had been on the river since the sun first rose over the low Chilcotin hills — three of us in an 18-foot inflatable raft.

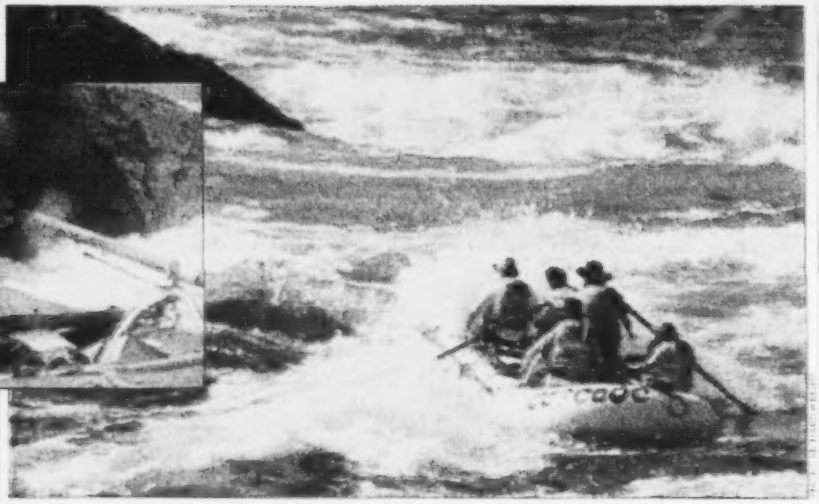
Soon, the last bend had been passed and the high canyon walls ahead cast disquieting shadows. A solid wall of lava blocked the river's passage, forcing it into a hard left turn over great chunks of rock that had fallen away from the ancient cliffs.

As I pulled on the oars to straighten our course we awoke from our contented drifting and made a final gear check, taking a final tug on our life jackets.

Then we saw the dancing white horses that rivermen know mark rapids. Small at first, just flecks of foam and spray seen above the smooth green mantle of river; then rising as we approached closer, seemingly trying to bar entrance to the canyon beyond.

We approached at a 45 degree angle as I kept pulling back on the oars, moving us away from the left shore where the current wanted to drag us. A couple of quick, hard pulls on the left oar put us bow on to the waves which bounced off the rocks, hit the raft on the starboard and stern and sent cascades of cold water over the three of us and into the boat.

Ahead of us lay another 16 kilometres of solid whitewater. Beyond that were five days of drifting in the warm sun. We were beginning to know this river; three friends moving closer together with each passing kilometre.



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with the Ministry of Forests, comments: "In the whole matter of river management there is no real problem in the province at this time, and there is no reason why the whole thing should be considered as a problem requiring a great deal of regulation. If wise river use occurs, wise management, without severe restrictions, should follow."

Harry Marshall, who is in charge of the Ministry's recreation program, adds: "There should be no automatic assumption that there is a problem, but it would be timely to take a detailed look at the whole thing. Is there a problem? Is it general? Is it local? What type of problem? Is it a problem that the people directly involved can solve with limited direction? If not, then it might indicate some formal involvement by government. We should not seek to solve a problem that does not exist."

The River Outfitters Association of British Columbia, presently the main commercial influence on B.C. rivers such as the Fraser, Thompson, Chilcotin, Blackwater, Stikine and the Tatshenshini, agrees with Harry Marshall. "We are as anxious as anyone that the rivers of this province continue to be open to all people and that any management problems be solved as simply as possible," says Dan Culver, past president of the association. "If we look at the United States, which is years ahead of us in river protection, we can see that many of the regulations they have applied to rivers have been extremely restrictive and in some cases unfair, particularly to independent or non-commercial river runners. One would hope that we can avoid those problems by planning ahead. It is certainly one of the aims of the association to work closely with government in developing river management plans."

At present, there is no overall management plan for provincial rivers. Certain agencies, however, have moved to control or solve specific local problems. For instance, in response to local needs the Ministry of Forests has developed river bank campsites and the occasional launch ramp on the Nechako River, the Cowichan, the Chilliwack, the Morice, and, in cooperation with other agencies, on the Crooked River.

The lack of overall river policy has been recognized by our provincial government for some time, and two moves have been made in response to this. The Outdoor Recreation Branch of the Ministry of Lands, Parks and Housing has been assigned the task of coordinating that ministry's role in recreational river corridor planning. Alan Carter, chief of the branch, will be tying together the concerns of all affected agencies. Carter feels that part of the management problem is one of identity. "I think that a central problem is one of designation. We need to identify in the public's mind, in the land manager's mind and in the politician's mind that this entity, this river, is important from a managerial point of view, that we should pay attention to it."

This individual designation, the consideration of each river singularly, could help avoid the problems that sudden increases in river use brought to unprepared resource agencies in the U.S. River use jumped so radically between 1973 and 1974 that managers were forced to halt additional use

while studies were completed, or begun. One result was the placing of many rivers under a permit system which restricted commercial, and in some cases, private use of rivers. It is hoped that this type of restrictive management will not be necessary on B.C. rivers.

A second government response to corridor management is a recent amendment to the B.C. Parks Act which gives Parks Branch the authority to manage entities such as rivers or trails when such corridors are specially designated by an Order-In-Council. This legislation will allow for more comprehensive river management than is possible when river shorelines fall under many different jurisdictions.

If river corridors are so designated, Supervisor of Operations of Parks Branch Ken Baker sees them handled this way: "If the government said, 'we would like Parks Branch to manage this area,' then we would get involved in such things as assuring that information was available, that proper campground facilities were developed, as well as launch sites, portages, beach access, and so forth. As a long-range solution to otherwise unmanageable overcrowding, there could be restrictions on users and the regulation of commercial outfitters."

Speaking of intensive or restrictive management, Baker says: "I don't see us arriving at that point for 10 years — I don't see a serious concern in that length of time. We only have a population of two million and a lot of rivers that are attractive. The problem, if there is one, will come from an increased number of river users visiting B.C. from south of the border."

American interest in Canadian rivers developed as U.S. rivers became overcrowded, and intensified during 1976 and 1977 when drought dried up many U.S. whitewater runs. Also, with most U.S. rivers under a permit system, the only avenue open to a U.S. commercial outfitter to begin or expand an operation is to "bury, marry or buy" an existing permittee. The lack of such a permit system in B.C. makes our rivers attractive to U.S. outfitters and could result in river crowding, making protection and management both more necessary and more complex.

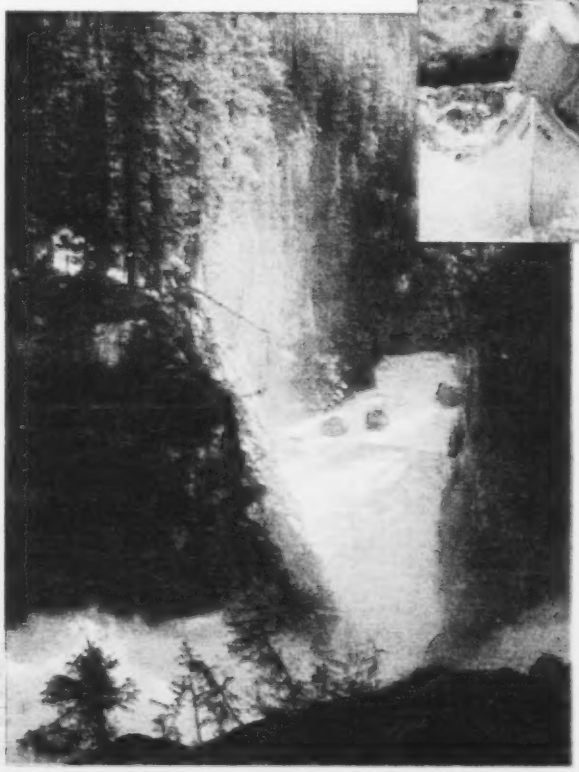
Charting A New Course

By paying special attention to our rivers, treating them as individual management concerns, British Columbia could have the most effective, best-designed and least restrictive river management program in North America. That is the challenge. What will be necessary will be for resource agencies like the Ministry of Forests to work with other resource users in a cooperative manner.

Harry Drage outlines the Ministry of Forests' intention in this area: "We certainly don't have the pressures on our rivers that the U.S. does, but that day may come. If overcrowding grows into a problem it will have to be dealt with. There are many rivers on wild land where we are responsible for recreation management. Though we do not yet have a project planned under a total corridor management concept, it is a definite intention of ours to do it, to take part in a planning process which involves those who use and those who have a management function along a river."

In 1979 we may not have all the answers as to how much development rivers can stand, how much is needed, what recreation use they can handle, or how much use there is at present. We may not have those answers yet; but one thing is certain. We know the questions, and we are beginning to seek the answers.

By paying special attention to its rivers, British Columbia could have the most effective, best-designed and least restrictive river management program in North America. This will require that resource agencies like the Ministry of Forests work closely with other river managers and river users. That is the challenge.



Collections

Edited by Michael Gregson

As promised, every item in this issue of Collections has been provided by our readers. Regrettably, there is only space to print a small number of the many informative, humorous and personal letters received to date. Future Collections will continue to carry material provided by readers, along with our regular items. Because of the volume of mail we are unable to reply individually to each letter we receive, but we wish to thank all who write in. Your interest in Collections is sincerely appreciated. Our address is: Collections, ForesTalk Resource Magazine, Information Services Branch, Ministry of Forests, 1450 Government St., Victoria, B.C., V8W 3E7.

Who Dunnit?

"In the Fall 1978 issue of ForesTalk you published an article on the Davis Raft and gave credit for the invention of the raft to Bill Davis of Port Renfrew. This is quite wrong. It was patented by Albert (Bert) Davis at the time he resided in Mirheteo village just south of Everett, Washington. We were working for Merril Ring Co. and shacked together. He worked as a timber cruiser and I as a locomotive engineer, and one night we worked out a design of the raft. I just forgot about it, but some years later Bert got a patent on it and collected royalties on it for some years, and later sold his rights to a Portland, Oregon firm. I am in my 94th year and my memory for dates is not as clear as it might be, but I am quite sure Bert patented the raft before 1913.

"I hope you will give credit where it is due. After Bert's death his brother, Otis Davis, claimed credit for the raft, but he had nothing at all to do with it. He is also deceased."

F.L. Bower
Kelowna, B.C.

According to the Canadian Patent Office records, No.146,188, a patent for a Log Raft, was filed by a Gilbert G. Davis of Port Renfrew, Vancouver Island, on October 14, 1912. It was granted by the Patent Office on February 25, 1913.

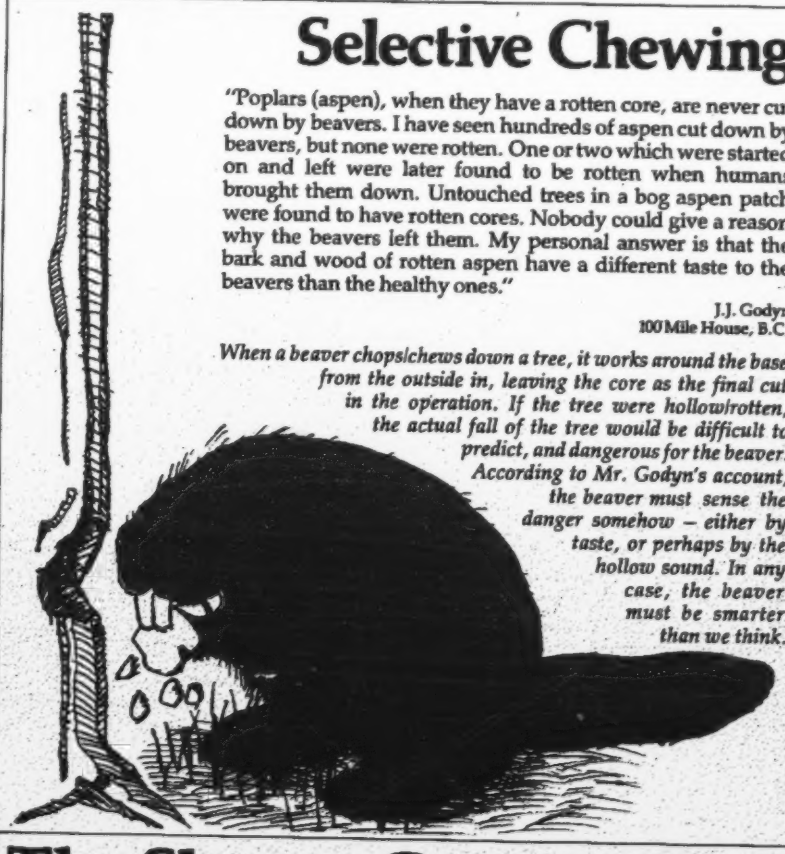
But the Canadian Patent Office records also show the following: A Bert H. Vollans of Everett, Washington, was granted a patent for his Log Cradle design on July 9, 1912.

Is Gilbert Davis really Bill Davis? Is Bert Vollans really Bert Davis? Are there really rafts of such patents?

Selective Chewing

"Poplars (aspen), when they have a rotten core, are never cut down by beavers. I have seen hundreds of aspen cut down by beavers, but none were rotten. One or two which were started on and left were later found to be rotten when humans brought them down. Untouched trees in a bog aspen patch were found to have rotten cores. Nobody could give a reason why the beavers left them. My personal answer is that the bark and wood of rotten aspen have a different taste to the beavers than the healthy ones."

J.J. Godyn
100 Mile House, B.C.



When a beaver chops/chews down a tree, it works around the base from the outside in, leaving the core as the final cut in the operation. If the tree were hollow/rotten, the actual fall of the tree would be difficult to predict, and dangerous for the beaver. According to Mr. Godyn's account, the beaver must sense the danger somehow – either by taste, or perhaps by the hollow sound. In any case, the beaver must be smarter than we think.

The Slowest Growing Tree

The speed of tree growth depends largely upon environmental conditions, although some species, such as box and yew, are always slow-growing. The extreme is represented by a specimen of Sitka spruce on the Arctic tree line which required 98 years to grow to 11 inches tall, with a diameter of less than one inch.

Submitted by: Laura Stringer
Ministry of Forests
Regional Information Officer
Prince George, B.C.
Source: Guiness Book of World Records 1978.

About China

"Your Collections' item in the Summer 1978 issue of ForesTalk entitled "The Vanishing Forests of China" leaves the impression that, once, most of the forests of China were destroyed by intensive farming through the centuries, and that the response by the People's Republic has been to import logs. I think you should have mentioned their intensive effort to plant trees.

When we were in Peking recently, our guide told us that 144,000,000 trees have been planted since 1949. Every year an average of 1,000,000 trees are planted. The program, it was said, relies heavily on the voluntary labour of students, government workers and office-workers. We saw the tree planters out along the roads in small groups, and we saw the results of their labours in the tree-lined streets of the cities, in the Yellow River flood control areas, and in tracts planted for the woods products industries.

Would it be possible to have a brief assessment of the effectiveness of this tree-planting program by a forester who has recently been to China?"

Joy Inglish Quathiaski Cove, B.C.

The Ministry of Forests' Special Forestry Advisor, E.L. Young, has made a first-hand study of forestry in China, and offers the following comments:

"Forestry in China has a very early foundation. The Ch'in dynasty of 407-206 B.C. built highways, roads and planted pine trees. The Han dynasty which followed (205 B.C.-220 A.D.), was even more progressive, and continued the emphasis on road improvement and tree planting. Little, however, was done by subsequent dynasties. In the last few centuries, through numerous foreign occupations and interruptions, much of the forested area was lost. The Japanese, during their occupation, removed from northeast China one hundred million cubic metres of wood.

"Today, there is perhaps no country in the world which now is more conscious of its forests than China.

"In the last twenty-five years they have restocked an area equal to half the land area of British Columbia. They are probably now planting annually as many trees as all of North America. Their afforestation and nursery programs are very impressive. In the north, species of pine, larch and poplar are planted. In the northwest, which is extremely sandy and dry, emphasis is on shelterbelt forestry. In the south, emphasis is placed on fast growing species such as the cedars, eucalyptus, bamboos and pines."

Directional Dilemma

"The forest can tell us lots of things. For instance, being lost in the forest and without a compass, look at the trees to find your direction. The north side has less branches and leaves or needles and more moss. In the nights the north side is lighter coloured. After cutting a tree down, count and look at the tree rings. The north side has narrower rings than the south side because it is never warmed by the sun."

J.J. Godyn
100 Mile House, B.C.

The natural directional signs might be quite regular in the 100 Mile House area where the forest canopy is not too dense, but in other areas of the province, particularly the coastal rainforest, it's so dark that the moss will grow on both sides of the tree in equal amounts. And if there's a clearing near by, the direction of light makes a tree mossier on the side away from the clearing. You also have to know the direction of the prevailing wind in the area, as the tree will be mossier on the side of the tree away from the wind. The wind factor will even affect the width of the tree rings; the tree, bending away from the direction of the wind, has to brace itself, with the result that the rings on that side of the tree tend to be farther apart.

"Your Collections' item on the olive tree in the Winter 1978 issue perpetuates the myth that its fruit cannot be eaten unless mis-treated abominably (with lye and salt). In fact, when dried — either by the sun or indoors — olives lose their acridity and become edible. It is in this naturally dried state that the merits of the fruit were first discovered. The fruit is rich in minerals and protein as well as oil.

Nearly all of the large North American (Calif.) crop is wasted; it goes unpicked and rots or else is spoiled as food by artificial treatment."

Robert MacLeod
Sirdar, B.C.

The Answer, My Friend, Is Logging By The Wind...

Perhaps the most ingenious method of timber harvesting in B.C. was that used by the Nootka Indians. They needed straight-grained, knotless red cedar for canoes and house boards. A tree like this, however, grew far back from the water's edge, and felling it would only entangle it with its neighbours.

The solution was to take only part of the tree, that is, to split a slab off a standing trunk. This was done by making two cuts in the trunk, one above the other, the distance between being the desired length of the slab. Wedges were driven into the notches and a pole inserted lengthwise into the upper notch. Over time, wind and tree action would create a split between the notches, which, combined with the weight of the pole, would make the slab fall off.

Submitted by: Ed Cepka
Chemainus, B.C.

Source: P. Drucker, *The Northern and Central Nootkan Tribes*, Smithsonian Institution Bureau of American Ethnology, Bulletin 144, 1951.

The most durable of all seeds are those of the Arctic lupin *(Lupinus arcticus)* found in frozen silt in the Yukon in July 1954. They were germinated and dated by the radio carbon method to between 8,000 to 13,000 B.C.

Submitted by: Laura Stringer
Source: Guiness Book of World Records 1978

ForesTalk Interviews

Jack Walters

by **Jean Sorensen**

University of British Columbia Research Forest Director Jack Walters is recognized as one of the most vocal forest management critics of the 1970s, and when he speaks out he does so from a strong forestry background. His reputation in reforestation has earned him a professorship on the forestry faculty at U.B.C. and he is a reforestation consultant to both the giant U.S. forest products company, Weyerhaeuser (a leader in silvicultural practices), and to the B.C. Ministry of Forests.

As past president of the Association of British Columbia Professional Foresters and a recipient of the association's Distinguished Forester Award, Walters is more than familiar with the problems of foresters in meeting the demands of industry and government.

In the Winter 1978 issue of ForesTalk *forest economist Les Reed, the author of two national reports dealing with the decline in Canadian timber supplies, asked the question: "Where were the professional foresters (public, private and academic) when this sorry record was being written? What were they talking about and thinking about? How could it get that way?"*

In this ForesTalk *interview Walters answers Reed by saying that forest management problems of the past arose despite the efforts of some dedicated foresters to point out these problems. He cites as an example the 1937 report entitled "The Forest Resources of B.C." by F.D. Mulholland, a Ministry of Forests' forester who was trying to warn government and the public of depletions in the province's timber supply. But Walters believes that, historically, no one has listened to what foresters had to say.*

Today, with an increased interest in forest management so apparent throughout the province, Walters feels that foresters are more eager than ever to speak out, and in this interview Walters makes it clear there is a lot that foresters want to say.

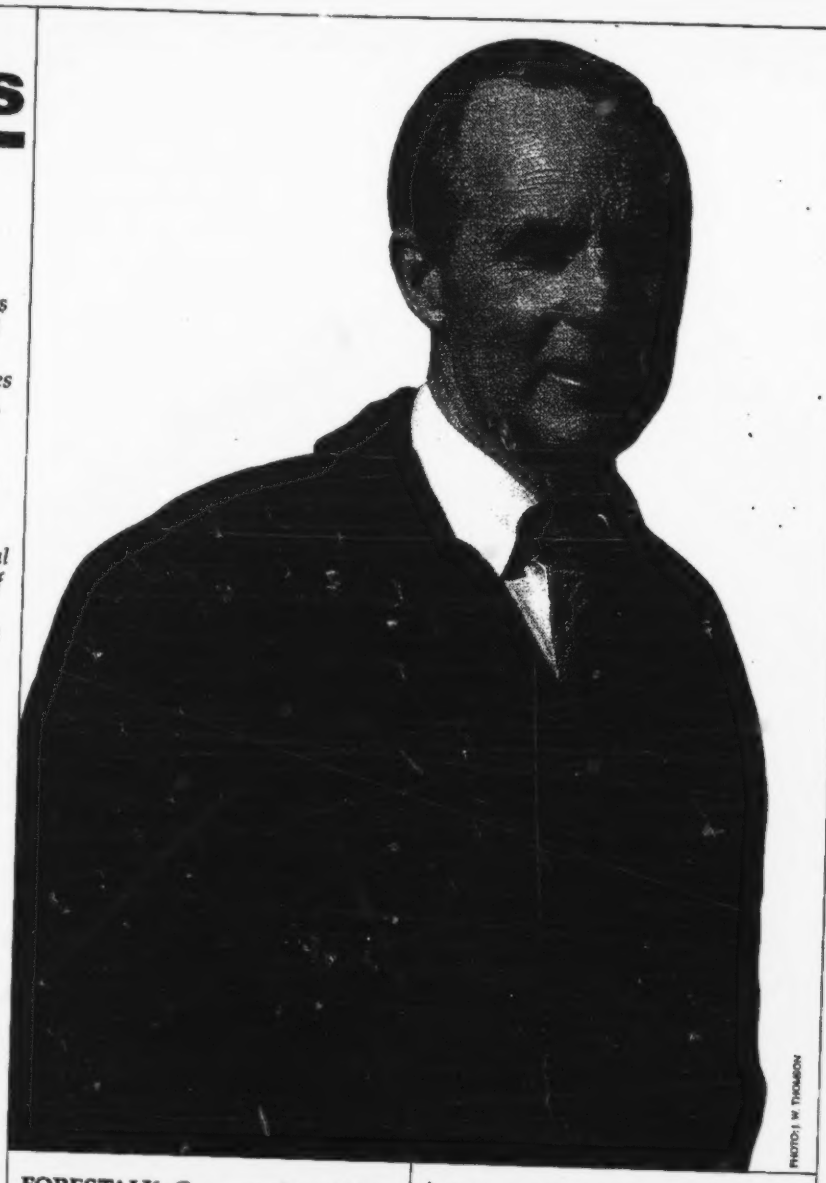


PHOTO: J. W. THOMSON

FORESTALK: Can you give a definition of forestry; of what a forester is?

WALTERS: Originally, the word "forest" referred to the royal woods where only the king had the right to hunt. We now define forests as all land bearing vegetation dominated by trees of any size capable of producing wood, or — and this is very important in terms of watershed management — capable of influencing the local climate or the water regime.

Forestry, then, is the management of forests with the aim of perpetuating and improving them. And this is really a very new development; not only in B.C. but throughout the world.

FORESTALK: In the not so distant past we looked on forests as wilderness, or an obstacle to get rid of in any way we could?

"There is a myth of inexhaustibility, and the vast forests still remaining in B.C. help to perpetuate that myth."

WALTERS: There is an almost universal belief that forests are inexhaustible. In B.C., if you drive into the interior or fly from Vancouver to Kamloops or Prince George, you see vast areas of forest. The problem is

that the public doesn't always understand — and we're just beginning to realize it in many ways ourselves — that these trees are not all profitable to harvest. There is a myth of inexhaustibility, and the vast forests still remaining in B.C. help to perpetuate that myth.

"Although you can measure the value of timber for pulp or telephone poles, you can't measure the value of a forest for recreation. You can't measure its value as shelter for wild animals, or even for water management."

FORESTALK: So, when we talk about the timber supply, we should be talking about how much wood we can actually harvest?
WALTERS: Absolutely.
FORESTALK: And that's not inexhaustible?
WALTERS: No. Timber famines in Europe by the 18th century produced a change in attitudes that spawned the beginning of forestry. In a sense we in B.C. are going through the same change in attitude now.

Today, forestry is an art based on scientific information applied with regard to economic and social considerations. There is no other industry like forestry, especially because of the long time span involved in forest management. This alone sets forestry apart from any other industry, calling, or profession.

"In some respects the forester is obliged to put the cart before the horse."

FORESTALK: It seems the only thing foresters can promise is a straighter tree which grows faster and perhaps is disease resistant. Even so, there is no guarantee that there will be a use for that tree?
WALTERS: That's right. We don't know, but we suspect that there is an expanding market for wood as the world population increases and the standard of living rises.

But forestry involves more than these economic considerations. Although you can measure the value of timber for pulp or telephone poles, you can't measure the value of a forest for recreation. You can't measure its value as shelter for wild animals, or even for water management. These are more difficult measurements.
FORESTALK: How can foresters try to get a handle on some of these questions?

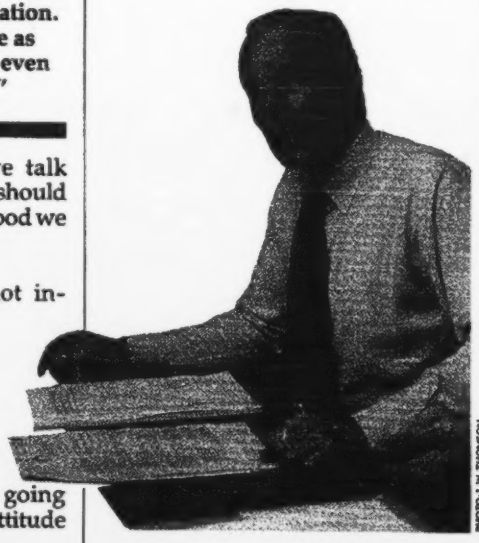


PHOTO: J. W. THOMSON

WALTERS: Foresters face a very, very difficult task today because we are in a transitional stage. We are moving away from simple exploitation, the using up of a virgin resource, into forest renewal. It is very difficult for foresters to know exactly what should be done because we don't have an adequate base on which to make these judgments.
FORESTALK: How can we get into intensive forestry without that information?
WALTERS: That's a good question. In some respects the forester is obliged to put the cart before the horse. The public's conception of good forestry is to go out and plant more trees. And we are going to have to do that, as well as spacing and thinning. But we really need to have that basic framework on which to make these very expensive decisions.
FORESTALK: Why do you say that foresters don't have enough background information to work from?
WALTERS: Successive governments, acting on behalf of the public — and you can't really separate the two — have been concerned primarily with the administration of virgin forests rather than the management of forests.
FORESTALK: Is there a feeling that whereas we have been harvesting first-growth forests, we now have to start putting money back into forest management?
WALTERS: Yes. We'll have to do that.

But now I want to say something in defense of foresters, although I don't think foresters are perfect — yet.

Forestry is a very young profession. Yet, for decades, foresters have expressed concern for the rate of exploitation and the need for renewal. It just wasn't sexy enough for the press to pick it up.

I can go back to the 1937 F.D. Mulholland report. This is a very important report on the state of the forests, throughout which he speaks in a very learned way about the dangers of exploiting our forests at the present rate.

He says (and this is in 1937, remember): "In B.C., it has been evident for some time that the forests, with protection only, will not continue indefinitely to support the great industries already established; to say nothing of increased production which is now actively planned."

"For decades foresters have expressed concern for the rate of exploitation and the need for renewal. It just wasn't sexy enough for the press to pick it up."

FORESTALK: You have been quite vocal on this subject of reforestation. Why have other foresters not come forward in such a way so the public was made aware of the situation in the past? Haven't foresters had a united voice?
WALTERS: That's a fair question. It's easier for a forester like myself, without direct allegiance or obligation to government or industry, to speak out. Foresters are beginning to make public statements, however, and the public is beginning to listen.
FORESTALK: You emphasize the need for more investment in reforestation. Hasn't the public been saying that it wants more trees left standing?

WALTERS: No, I don't think most of the public wants to reduce the rate of logging. I'm sure of that because our forests provide jobs directly for 85,000 people and indirectly for another 160,000.

FORESTALK: So those who call for less logging are . . .

"It is very difficult for an individual forester to stand up in a school or a public meeting and criticize his employer."

WALTERS: A minority. In the face of public demand for more and more social programs, governments have responded by taking more out of the forest resource than they have put into it. This trend may be changing. However, even in 1978, which was a record year for silvicultural investment, direct revenues to the government — stumpage, royalties, but not taxes — would exceed the silviculture budget by 10 times.

FORESTALK: Again, where has the forester been when it came to speaking out on forest management? What about the company foresters? Certainly they must realize these things more than anyone else?

WALTERS: All foresters speak out through the Canadian Institute of Forestry and through our association, the B.C. Professional Foresters. The public isn't aware of that fact; the environmentalists aren't aware of it; but, for years briefs have been going to the government recommending intensified management.

"If we really got involved with intensive forest management we could double, triple, or even quadruple the yield from our forests."

Foresters occupy a unique position because the Crown owns the land. Since a government forester is a civil servant and owes direct allegiance to the government, he is extremely limited in what he can say.

A company forester is responsible to his employer, but is also indirectly dependent, because we are all operating essentially on Crown land, on government goodwill to some extent. So he, too, has limited opportunity to act individually.

FORESTALK: Because foresters are hired by various sectors in the forest economy and are individuals with mortgages, they generally put forward the positions of their employers — thus the difference of opinion among foresters?

WALTERS: That is quite right. It is very difficult for an individual forester to stand up in a school or a public meeting and criticize his employer. But once foresters have a strong profession, once they develop public respect, then any forester will be able to speak out. The public and our professional association will, in a sense, protect us.

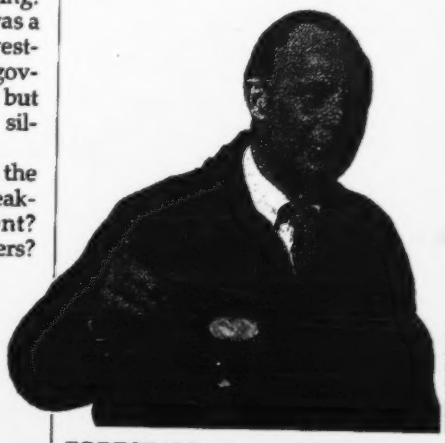


PHOTO: J. W. THOMSON

FORESTALK: Is good forestry sustained yield forestry, or have our ideas on that topic changed over the years?

WALTERS: Most foresters subscribe to the opinion — and I think they are right — that if we really got involved with intensive forest management we could double, triple, or even quadruple the yield from our forests. This has been done in agriculture, with incredible results. It's a green miracle, if you like, and we can copy the green miracle in forestry. But it takes money.

FORESTALK: Who should be doing this? The companies, government, or places such as the UBC Research Forest?

WALTERS: In view of the fact it is Crown land that we are really talking about, I think it is a Crown responsibility. The onus is not directly on the forest industry. We are not going to get intensive management at the cost of the shareholder because the shares don't pay enough to do it.

FORESTALK: Again, it seems that foresters are the individuals who can best recognize and speak out on issues such as this.

"In B.C. foresters are not really known by the public. They are still thought of as only being on the lookout for fires."

WALTERS: That is slowly developing. Of course, we get impatient for change. I know I do. But it is coming. At the February meeting of the Association of B.C. Professional Foresters in Victoria, there was a marked change. There were voices there imploring foresters to ignore minor differences in order to get a basic message out and to give a spokesman more authority to speak for the 1200 members, whether they are in government, industry, or the university.

Once you have heard from them as a group and a certain amount of integrity has been established in the public eye, you will hear from them individually. Very quickly.

FORESTALK: What makes you think the forester's integrity has been tarnished in the past?

WALTERS: I think it has only recently been tarnished because of what Les Reid said in *ForesTalk*, a view followed up by one member of the Sierra Club in one of their newsletters. It's an implied criticism.

But I wasn't really thinking so much about that. In B.C., foresters are not really known by the public. They are still thought of as only being on the lookout for fires.

Going back to Reed's implied criticism of the forester for not having warned of the timber shortage in the past: Look at the Mulholland report of 1937. Where was the government and where was the public? Where were the economists? Surely economists have a responsibility for government spending and for the economic future of B.C. too.

We foresters didn't do a song and dance with the issue, as perhaps we should have done. Briefs did go to government over and over. I'm not making excuses for foresters; I'm just saying that foresters *have* been speaking out, just not strongly enough. But you are going to hear more from them from now on.

I guarantee it.

INTENSIVE FORESTRY UPDATE

Today, almost half the logged-over land in B.C. is planted with seedlings grown in Ministry of Forests nurseries. (Natural regeneration is relied on to reforest the remainder of this land.) Looking ahead, Chief Forester Bill Young hopes to see the day when most of the province's clearcut sites will be reforested by planting, and with genetically improved seedlings.

ONE HUNDRED MILLION
AND STILL GROWING

by **Peter Grant**

It's a sunny March morning and water is trickling down the hillsides. The logging road weaves across a sea of slash, sawdust and mud. This is Lot 90, just south of Shawnigan Lake on Vancouver Island: the site of the province's first tree-planting operation of the year.

Three planters are working their way in a line across the site. Each carries a small pointed shovel in one hand; bright yellow bags full of seedlings hang from their belts. About every three metres a planter stops, finds a spot of bare soil, stabs the shovel blade a hand's length into the earth and works it back and forth. Then he pulls a Douglas fir seedling from the bag, sets it in the hole and carefully backfills earth against the roots. There's a knack to it, as planter Dave Ilott explains: "You have to plant them right to the root collar, not burying any green on the stem, but covering all the roots." The planters make their way to another spot, keeping approximately three metres between them.

Dave and his partners are the principals of Talking Tree Forestry Limited out of Slocan Lake. This is their sixth year of planting trees on contract. It's a common arrangement. Outfits bid for planting contracts, which, depending on the planters' past experience, usually go to the lowest bidder. Of the 60 million seedlings planted in B.C. last year by government and industry, over 75 per cent of the work was sub-contracted out to private contractors.

It's an outdoor life for the four-month planting season. "We move from one contract area to the next," Dave says. "We've got big army tents, a school bus, and a cook tent. Camping is the most inexpensive way." For bigger projects they hire 15 or 20 extra hands, including a cook. "A lot of the people we take on are neighbours and friends. It's sort of an extended family."

Teamwork and dedication are needed to plant a site within a deadline and to the standards of the contract. "Planting is hard work if you want to make any money at it," says Dave West, Ilott's partner. They get paid according to the quality of their work; the planting supervisor — in this case a forest officer with the Ministry forestry crew for the area — makes daily quality checks. Tree planters have to keep a steady pace. A thousand trees each in a long day means they're doing well.

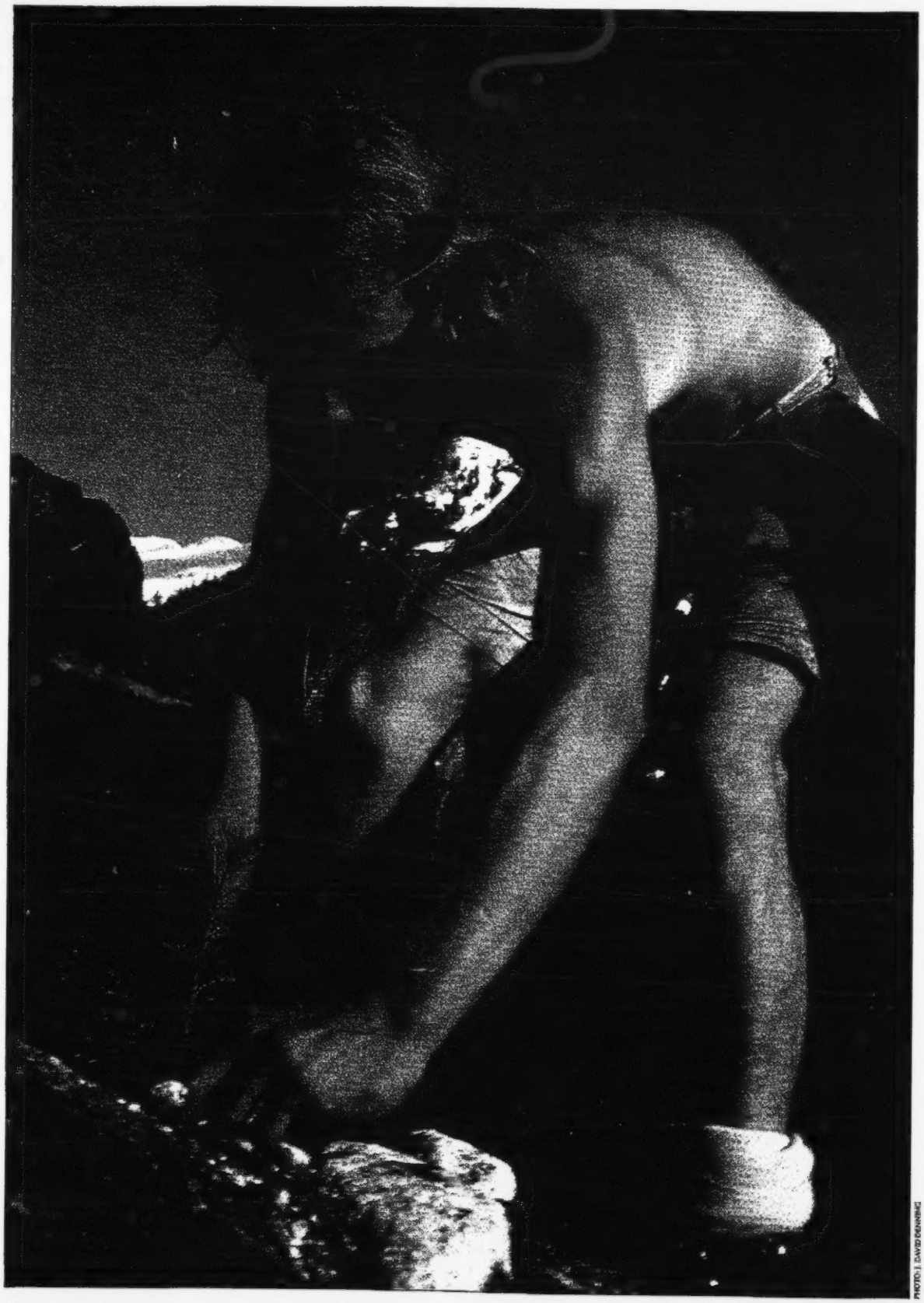


PHOTO: J. DAVIDSON/MC

Every year throughout B.C. tree planters head out to the bush as soon as the ground thaws. In some years this could be as early as January on Vancouver Island, as late as June in some spots in the interior. The planting season is dictated by the weather: when the ground is ready, the seedlings have to go in. It can't be left until late spring or summer when the soil dries out.

By Man or Nature?

Planting seedlings is not, of course, the only way to grow a new forest. More than half the forestland harvested in B.C. is allowed to regenerate naturally. Much of this land, usually the more remote or steep areas, just isn't productive enough to repay the cost of growing and planting seedlings — a cost which averages about $250 a hectare. In some areas the tree species regenerate well by themselves given cutting methods that allow natural reseeding.

Natural growth comes from a marriage of seed and soil. Where trees standing near a harvested site can produce enough seed, and where there's enough exposed mineral soil to germinate the seed, the site can be managed for natural regeneration. In the interior lodgepole pine forests, crews with tractors and special attachments help nature along by scarifying, or raking, the ground. This helps prepare the soil for new tree growth.

Planting, however, is usually faster and more effective than natural regeneration, especially in the fertile coastal forests and the interior wet belt. On some sites natural growth won't start for 10 or 15 years, and to the forest industry, faced with a shrinking supply of good quality, accessible timber, those are wasted years. Besides, planting nursery seedlings on a freshly-logged site almost always guarantees a good forest crop.

The investment in tree planting has become considerable. Last year the budgeted cost of planting 56,000 hectares was about $14 million. That included the cost of collecting cones, extracting and processing the seed, growing seedlings in nurseries and planting them on Crown land. Also, companies harvesting on leased public land are obliged to reforest those sites and they're reimbursed by government in the form of credits on their stumpage fees. The Ministry of Forests, before approving such stumpage credit, checks these company reforestation projects.

Ministry of Forests nurseries are now producing 100 million seedlings a year to reforest the province's logged-over areas. A series of complex systems are involved in getting the right seedling planted in the right site at the right time of year. The final link in the reforestation chain is the tree planter, the person responsible for setting the new tree firmly in the ground. This back-breaking labour is usually carried out on difficult terrain and under harsh weather conditions, but when things are going right a good planter can plant in excess of one thousand seedlings a day. Team work and dedication are a must on any planting crew, and as one planter comments: "Planting is hard work if you want to make any money at it."

The Reforestation Chain

Long before planters are called in (and in some cases, before an area is even logged), a forester surveys a site and plans for its eventual reforestation. If the site will require planting, the forester must select tree species that will grow best in that particular soil and climate. Seedlings must be physically developed enough to survive local conditions, and will have to be

The reforestation chain begins with the collection of seed cones from good quality, cone-bearing trees around the province, or from improved tree species in seed orchards. Collecting cones from the wild is often done by hand, but helicopters are proving to be very useful for this type of work. The seeds are extracted from the cones, sorted, identified, counted and stored for later use.

Silviculture in Action

Two oddities caught Pierre Graham's eye when he first surveyed Lot 90 near Shawningan Lake. Much of the Douglas fir was infected with root rot, a widespread and destructive fungus disease which spreads from the roots of old stumps to those in nearby young trees. He also noticed a few western white pine trees; remarkably, they were free of blister rust, a disease that has infected most of the white pine stands in B.C. As a result, both root rot and white pine became factors in Pierre's reforestation plan. Lot 90, like many other planting sites in B.C., wasn't just logged and planted.

The white pine, specially marked, were left standing by the loggers, and a corner of the site was planted with white pine using container seedlings from the Green Timbers nursery. If this stand can be nurtured to cone-bearing age — free of blister rust — it could become a valuable source of seed for reforesting those areas where white pine grows extremely well.

Next, the site was opened to the general public to allow anyone interested in free firewood to buck and haul the alder left by the loggers.

In September of 1978 a D-8 Caterpillar pulling a special blade was brought in to get rid of the root rot fungus. The Cat scarified, or raked, the ground deeply enough to uproot the Douglas fir stumps. When the roots are exposed to the air and broken up, the fungus dies. No further treatment is needed.

Only then was the Lot 90 planted — just one silvicultural step of many for an intensively managed forest.

genetically adapted to the environment.

For Lot 90 at Shawnigan Lake, the reforestation sequence started back in the summer of 1976 when Pierre Graham, a forestry officer with the Ministry's Vancouver Region forestry crew, first cruised the area. Pierre found Lot 90 — slated for logging the following year — to contain a mixed stand of Douglas fir, western hemlock and western red cedar. By studying ground vegetation and referring to the species selection guide for the Vancouver Forest Region, Pierre determined that Douglas fir would grow best on the site once the area was scarified for root rot. Western red cedar was a better choice for marshy hollow areas.

Pierre then examined the soil to decide what kind of seedlings to order. Since the area was free of rocks and other threats to a seedling's growth, he chose standard two-year Douglas fir and one-year cedar seedlings.

When Pierre wrote up the sowing request — an order for seedlings from the nursery — he noted the exact location of the site, including its elevation. This is needed to ensure that the right seed is used to grow the seedlings. Seed that comes from the same area makes for better growth, as the trees' own growth timetable already will be in tune with the local environment. In fact, the Douglas fir seedlings for Lot 90 originated from seed collected in 1966 at Bear Creek only 70 kilometres away.

Pierre's sowing request ended up, along with hundreds of other such requests from across the province, at the Ministry of Forests' seed centre at Duncan on Vancouver Island, a bank for all seed collected in B.C. While the engineers were building logging roads to Lot 90 and the fallers and yarders were beginning to harvest the timber, the Ministry's nurseries were growing seedlings tailor-made for the site.

A Quick Tour

The Ministry's Koksilah nursery on Vancouver Island is easy to find: a large, carved sign marks the highway entrance just south of Duncan. Even though it's probably the province's best-known forest nursery (there are two others on Vancouver Island, three in the Fraser Valley, one near Prince George, another near Salmon Arm and a couple of smaller satellite nur-

When an order for seedlings to restock a logged area is received, the appropriate seed is taken from storage and planted in nursery fields or in styrofoam containers in nursery shelterhouses. After extensive nursery treatments for several years, seedlings are lifted and readied for shipping to planting sites. Container-grown seedlings are wrapped in saran film. Then it is up to the tree planter, with bags of seedlings strapped to her side, to complete the job of reforestation.

series), there is not much to see from a distance: a row of long white shelterhouses, and beyond them the fields, bare except for the green fuzz of emerging seedlings.

Nursery superintendent Neil Marshall feels strongly about the value of nursery care in the chain of reforestation. "You can do all you want in the bush, but you won't grow much of a forest without good quality seedlings," he comments.

Painstaking care is needed to equip seedlings for transplanting out to the wild. From the day they are sown to the time they are lifted two or three years later, seedlings get an extensive series of treatments. They must be protected from pests, weeds, diseases and frost. A lot of effort also goes into growing dense but compact root systems for easy planting. In their second summer they'll be root-pruned, wrenched, irrigated and dried to encourage the desired root development. The trees may even be transplanted for a year if their ultimate destination has a harsh environment.

Over in a shelterhouse Neil stops to talk with some workers who are lifting container-grown seedlings. They pull 25 at a time from upturned styrofoam blocks, wrap the root systems in protective saran film and stow the seedlings in cardboard boxes. These cedar seedlings will be stored, Neil says, at just above freezing until the site is ready for planting. They can be stored for months when they're dormant.

Container seedlings, or "plugs" as they're called because of the shape of their roots, have become immensely popular in just a few years. Where 10 years ago they were still at the testing stage, this year the nurseries are growing 28 million of them. Plugs are easier to grow, take up less space, and are easier to plant than bare-root stock. A "dibble" (a poker with a crossbar) is used to punch a neat hole in the soft ground, and the smooth plug slides easily into the hole. In many instances, plugs are also scoring better on survival tests than bare-root seedlings.

Ironing out the Kinks

The planters at their back-bending work resemble the way farmers have laboured since the dawn of agriculture, but behind this seemingly simple job is a powerful concentration of forestry know-how. Over the past decade planting has become increasingly successful, and from special

FROM SEED TO TREE

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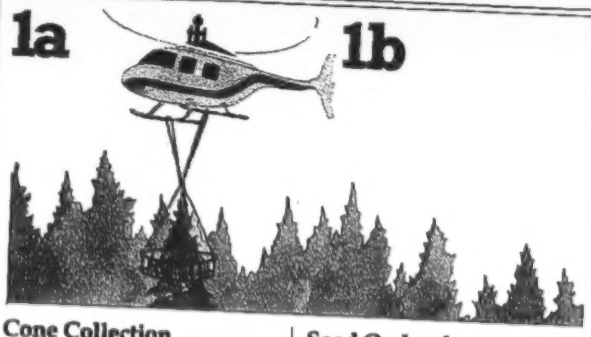


Cone Collection

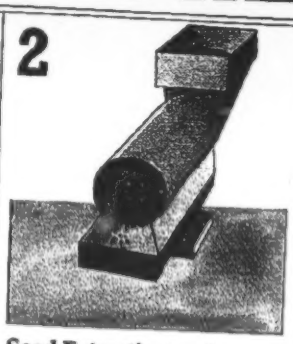
Cone pickers collect seed-bearing cones from natural stands all over the province. Cones can only be collected for several weeks during late summer, in years when a good crop appears. Good cone crops are infrequent for most species; interior spruce hasn't produced a good crop in the Cariboo Region since the late 1960s. Month by month observations are necessary to predict when a good crop may appear.

1b

Seed Orchards

The coming alternative: superior trees reproduced in orchards yield more cones and higher quality seed at regular intervals. Orchard seed will be further improved with stock from tree-breeding experiments. Twenty-five seed orchards have been established so far in B.C. — twenty of them by private companies.

2



Seed Extraction and Cleaning

Seed cones are collected from company-leased land, Crown land, or from seed orchards. They are shipped to the Duncan Seed Centre where machines extract and clean the seed. Cleaned seed can be stored for years at low temperatures.

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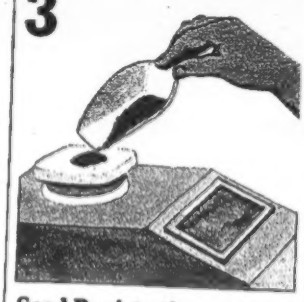
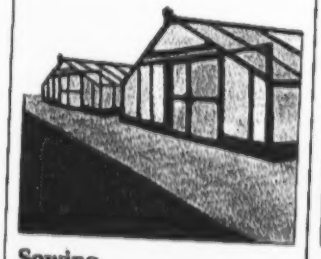


Seed Registration and Testing

Seed is catalogued according to place of origin (latitude, longitude, elevation) and usually serves to reforest lands in those same areas, since most seed sources are adapted genetically to only a small region. The Ministry of Forests keeps a computerized inventory of all seed on hand. Every two years, samples of all seed lots are drawn from storage and tested to ensure that they are still viable.

4



Sowing

Government and industry foresters in the field assess logging sites which need planting and submit sowing requests to the Ministry's regional offices. To meet these seedling requirements, seed is drawn from the seed centre and shipped to nurseries for sowing. Bare-root seedlings are grown in fields; container seedlings, or "plugs," are grown in styrofoam blocks in shelterhouses.

5

Nursery Care

Seedlings are nursery-grown for one to four years under a prescription for watering and fertilizing, root development, protection, chilling and lifting.

6

Lifting, Storing, Shipping

While dormant, seedlings are lifted by hand or machine, boxed, and kept in cold storage until they are shipped to planting sites.

7

Planting

Stock is planted by hand, using a mattock, shovel or "dibble." Planting is usually contracted either for spring or fall. Foresters return to plantations after one and three years to determine the plantations' survival and growth rates.

feeding of spruce in the nursery to determining the best conditions for planting lodgepole pine, almost every step of the tree planting chain is under control.

Of course there are snags, such as sudden changes in the weather — often unforeseeable and costly. A new plantation of Douglas fir in the interior dry belt may be wiped out by summer drought; a sudden freeze following a thaw, as happened last January, can be disastrous for a nursery field of one-year-old interior spruce. Finding solutions to such problems will take years of research.

Seedling loss due to abnormal weather isn't the only reforestation problem. Kinks in the seedling delivery system can also create gaps between field demand and nursery supply. Seedlings on order are sometimes turned back to the nursery to be held for another year or re-directed to other locations. This can occur when logged sites can't be prepared in time, when the sites have been harvested ahead of schedule and have already regenerated, or when a site is not harvested as planned.

Getting the chain of reforestation running smoothly and efficiently means looking a decade ahead. According to John Bruce, director of the Ministry's Silviculture Branch: "We need a lot of planning. How much will harvesting increase over the next ten years? How much of it will require planting? What species? What size of stock? And so on." In a rapidly expanding operation, those are big questions. Demand for seedlings has snowballed in the last ten years, as planting has more than tripled in scale over that time. Sowing requests for 1979 totalled 111 million seedlings, 11 million more than the nurseries can grow. As well as enlarging its nurseries (especially providing more shelterhouses for growing container stock) the Ministry is currently exploring the possibility of involving private nurseries to meet the increased demand for seedlings.

A Growing Concern

Much of the recent expansion in planting has been in the interior. B.C. now grows more interior spruce seedlings than all other species combined. The know-how from research is part of the reason for this trend; a new attitude towards reforestation is probably equally as important. John Bruce explains: "At one time the only planting was on the coast. Only in recent years has there been a realization of the need to plant in the interior." Bruce traces this growth to the 1956 report of the Sloan Commission on B.C.'s forest resource: "Sloan advocated more nurseries, more planting, and the move to the interior." However, it is the environmental movement of the 1970s that has helped trigger public interest in harvesting and reforestation methods, Bruce thinks. "The big push for more reforestation has been in the last five years." As a result, new forest licences include strict reforestation requirements."

The trend toward planting more trees will continue. Pointing to recent projections by the Ministry, Bruce estimates that the scale of planting will more than double in the near future. "We need 150 million seedlings a year to cover current logging, and there's an estimated backlog of 200 million seedlings, which we'll work off over ten years. That means planting an additional 20 million a year." Container-grown seedlings will eventually make up half of that huge total.

Further down the road, tree planting will get a powerful boost from another source: genetically-improved seed. The coastal seed orchard program is a multi-million dollar venture currently shared by eight logging companies with the Ministry of Forests. Of the 25 seed orchards established since 1963, the first ones, like the Douglas fir orchard at Koksilah, now supply about four per cent of the seed used to grow seedlings — and it's superior to wild seed. Bill Young, the Ministry's chief forester, outlines the long-range plan: "Many of our stands, like the north central interior lodgepole pine, and some hemlock stands on the coast, will get a type of treatment that will prevent random natural seeding so that we can plant them with genetically-improved stock, well-spaced. In the long run this will be far cheaper because our spacing costs in those stands are now very high. And we'll have a greater quantity of better quality wood."

The day will come. When it does, the partners of Talking Tree Forestry Limited might well still be out there with shovels and dibbles, working their way across a site in a line, hand-planting the genetically-improved seedlings, helping to renew the renewable resource.

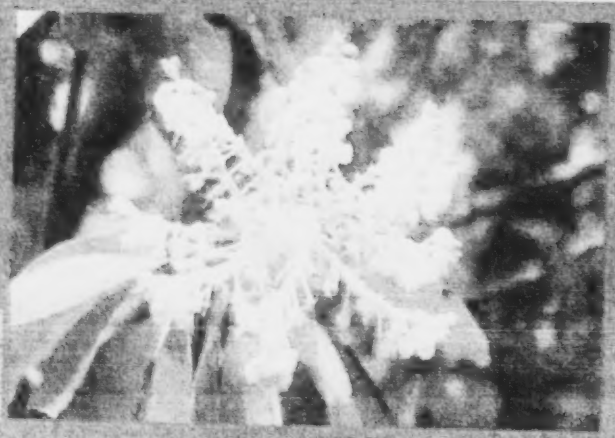
Arbutus: A Tree Alone

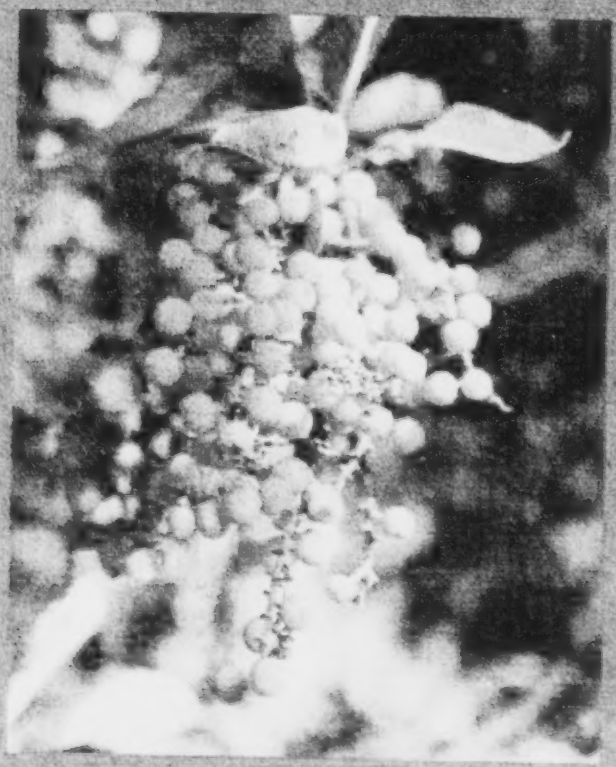
A photo essay by Gary and Judy Green

Clinging precariously to cliff faces overlooking the Pacific Ocean, the Arbutus stands alone where no other tree species can gain a foothold. Twisted and contorted, these veterans hang as if suspended in air, withstanding the onslaught of countless gales.

Arbutus range along a narrow belt of the Pacific coast from southern B.C. down to southern California, where this tree species is referred to as the Madrona or Madrone. Seldom are they found growing above the one-thousand-foot level or more than five miles inland.

Exploring the plant community associated with the Arbutus one finds a complex relationship. The Arbutus is the dominant species, seeking out rocky, well-drained soil. Various species of grasses and scatterings of lichens and shrubs form the ground cover.





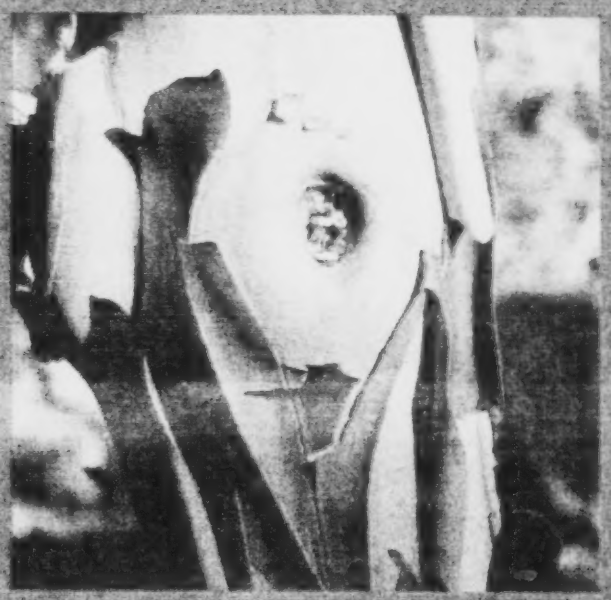
Succulents such as Stonecrop grow from cracks in the rock, blossoming only when sufficient water is available. Moisture in spring brings forth a display of wildflowers such as Shooting stars and wild lilies.

A unique species, the Arbutus sheds its bark which peels off in thin, paper-like strips exposing a yellowish-green trunk. This in turn becomes a deep reddish brown in colour. Wax-like leaves stay with the tree for two years, with the tree losing half its foliage each May. This makes it Canada's only broad leaf evergreen.

Clusters of white flowers adorn the tree in spring, attracting the attention of many insects which seek out the flowers' rich contents. With the passing of summer the flowers turn into a granular, berry-like fruit, to the delight of many bird species which gorge themselves to a state of near intoxication.

A walk through a cluster of Arbutus is an opportunity to exercise the imagination. Weather-worn trunks, twisted branches reaching skyward, and holes which may serve as homes for forest wildlife can be bent by the eye into countless fantasy forms.

The Arbutus is truly a tree alone.



LETTERS

I feel I must write your worthy publication in order to correct a statement in the Summer 1978 article "Intensive Forest Management: Its Time Has Come." While it is true that "A number of thinning operations, along with some fertilizing, have already been carried out by Government and Industry in certain coastal areas," it is also true that at least one company in the interior of the province has undertaken similar intensive forestry projects.

Slocan Forest Products Ltd. and its predecessors, Triangle Pacific Forest Products Ltd. and Pacific Logging Company Ltd., first embarked on thinning projects in 1957 and fertilization trials in 1970. While not of the magnitude of some of the coastal projects, the forestry experiments undertaken by this company reflect an ongoing commitment to the forest base of this province, even if a considerable portion of that base is in the interior.

Terry Dods, R.P.F.
Slocan Forest Products Ltd.
Slocan, B.C.

In part two of "The Road North" in the Spring 1979 issue of ForesTalk, Charles Lillard wrote: "Boya Lake Provincial Park ... campsite is maintained by the local Lions' Club ..." While the Lions maintain a picnic site on the north side of the lake, the campsite of the southwest corner of the lake was developed by the Parks Branch (then Department of Recreation and Conservation), in 1976 and operated by the Parks since that time. I trust that this information will clarify the factual error.

You are to be congratulated on your well produced and informative publication.

F.M. Heidt
District Superintendent
Parks Branch and Outdoor
Recreation Division
Terrace, B.C.

MOVING?

Please let us know.

ForesTalk, Information Services Branch, Ministry of Forests, 1450 Government St., Victoria, B.C. V8W 3E7

The article "The Road North" in your Winter 1978 issue states that little occurred in Dawson Creek from the time the first settlers arrived in 1907 until 1942 when the U.S. Army engineers came to build the Alaska Highway. However, 1930 was a big year for Dawson Creek as the railroad was extended from Hythe, Alberta — a distance of 52 miles.

I was there in the fall of 1930 working with an elevator crew building the Northern Elevator which is now National Elevator. There were five elevator gangs there at the same time, all living in tents. The railroaders were also in tents, so it was a real tent town. There were several homes under construction at the time and a hotel and stores. Also, some buildings were moved from the old trucking town of Dawson Creek (which was only a short distance away) to the new Dawson Creek.

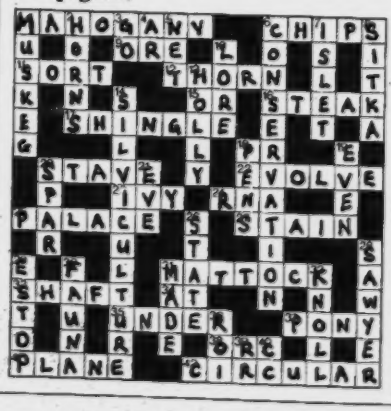
This was the birth of the city of Dawson Creek, which I thought was a pretty big event.

P. Austman
Cowichan Station, B.C.

I became acquainted with ForesTalk when I was teaching at Colorado State University. Since then I've been employed with the largest paper producer in the world and now with the U.S. Federal Government. In each position clarity in communication was paramount. I find your illustrations and articles understandable in laymen's terms, and a very effective communication device.

Sally Edwards
Pike-San Isabel National Forest
Colorado

Answers for ForesTalk Crossword
(see page 27)



ForesTalk is a very unique publication and I feel privileged being on the mailing list. It is timely, important and informative, yet it is light and easily readable. Thank you for bringing to us so many facets of the forest industry as well as some interesting and delightful sidelights of life in B.C. I was particularly impressed with the Winter 1978 issue for we recently returned from having visited Vancouver Island, Fort St. John, W.A.C. Bennett Dam and Dawson Creek.

I also am very much impressed with the effort being expended and the vision with which British Columbia is approaching the problem of regulating (a must) the care and use of the forests so that future generations can enjoy the beauty as well as the economic benefits of such a resource.

Also of interest in the Winter 1978 issue was the article on the extent of export of B.C. forest products. As a consumer and builder I can speak first hand. I am building a home in Georgetown, Colorado, a small turn-of-the-century mining community. When I ordered the cedar siding from our local lumber yard I was amazed and pleased to find it came from B.C. and from the company for which my son works, B.C. Forest Products. Another coincidence occurred at the same time in another small mining community, Silver Plume, two miles up the road from Georgetown. My other son was replacing a cedar shingle roof on an old turn-of-the-century building and came across a label still attached to one of the old shingles. The label read: Bloedel, Stewart and Welch, Vancouver, B.C.

Thanks again.

A. William Eller
Lakewood, Colorado

If you would like to be added to ForesTalk's mailing list — there's no charge — just drop a note to:

ForesTalk
Information Services Branch
Ministry of Forests
1450 Government St.
Victoria, B.C.
V8W 3E7

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THE SUN RISES
ON A NEW MARKET

by Graham A. Wallace

The western world's first contact with Japan occurred in 1542 when a Portuguese ship wandered off course and accidentally came upon the string of islands which legends claim were created by the Goddess of the Sun. The people of the islands lived in wood houses made of beautiful posts precisely joined to intricately notched beams. Today, these traditional homes still form the centre of Japanese family life and culture. But for how much longer?

Japan needs lumber, and lots of it, to keep pace with the growing demand for new and better wood houses. B.C. sawmills have plenty of lumber to sell to Japan, but there's a hitch: Traditional Japanese house construction methods can use up to 80 different lumber dimensions, but standardized Canadian lumber comes in only five basic dimensions. The solution: Encourage the Japanese to adopt North American building methods using the standardized lumber (two-by-fours, etc) produced by most of B.C.'s 220 sawmills.

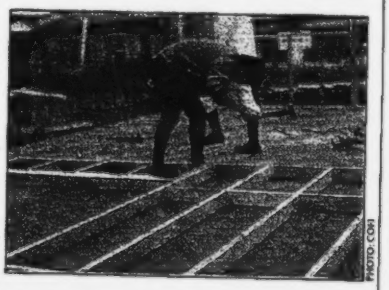


PHOTO: COFI

In The Beginning

A more affluent and more demanding population — presently over 114 million — is pressing the time-honoured master carpenters of Japan to look for more efficient and faster methods of building houses. In fact, the Japanese, with half the population of the United States, are currently building nearly as many housing units as the U.S. does each year.

The Japanese have tried high-rise steel and concrete construction, but for a people who value tradition and have lived with the warmth of wood for centuries, wooden dwellings are still the only answer. This preference, along with limited domestic forest resources, could prove to be a boon to the B.C. forest industry — if the Japanese were to adopt the North American building method known as Platform Frame Construction (PFC).

A shortage of wood fibre and of skilled labour plus a need for improved housing techniques led the Japanese to study housing methods used in different countries. A study mission visited Canada at the turn of this decade and seemed to be impressed with our methods and standardized materials. However, although the Japanese were interested in importing more B.C. lumber, there was a problem:

Most of B.C.'s 220 sawmills are set up to produce Canadian Lumber Standards (CLS) dimension lumber (two-by-fours, etc.) which is used exclusively in the Platform Frame Construction method. But the Japanese traditionally have preferred to buy raw logs. As the export of raw logs from Canada is restricted, the Japanese have also been buying squared logs, usually in the form of medium squares (30 centimetres square) or baby squares (10 centimetres square). The baby squares are used as is in the Japanese post and beam style of construction while the larger squares are re-milled in any of Japan's more than 24,000 privately-owned sawmills. A normal Japanese home can use more than 80 different lumber dimensions in its construction.

It was obvious that if B.C.'s sawmills producing CLS lumber were to benefit from increased lumber exports to Japan, it first would be necessary to convince a significant percentage of the Japanese housing industry to adopt the Platform Frame Construction method which requires the use of CLS lumber. It would also be necessary to have the responsible Japanese government agencies rewrite their building codes and lumber standards to accommodate the Canadian methods and materials.

To achieve this objective, in 1973 the Federal Government, the Province of British Columbia and the Council of Forest Industries, which is a trade association of private forest companies, jointly launched a Cooperative Overseas Market Development Program (COMDP) in Japan. The program was designed to introduce Platform Frame Construction and thereby create a demand for CLS lumber in Japan. Four years later there were indications of success.

Slowly, A Change In Attitude...

By the end of 1977, 10,000 Platform Frame Construction houses had been built in Japan. More than 5,000 of those were completed in 1977 alone, and 1978 starts are estimated to have reached approximately 9,000 units. While those numbers are not considered significant in the face of 1.6 million annual housing starts there, in perspective they are more than encouraging. Things in Japan happen step-by-step, slowly and methodically. Tradition established over centures is not altered overnight. Yet the Japanese have been receptive to Platform Frame Construction from the start, recognizing the mutual advantages of the change almost immediately.

"I consider it very important to provide a high quality, economically priced house built in the shortest possible time," said Mr. Kaneko of the Ministry of Construction in Japan when the Platform Frame Construction system was first being introduced. "For this reason, the Ministry of Construction has approved the platform frame method of construction which is widely used in the United States and Canada."

Government approval meant that Japanese building codes would permit the construction of PFC structures. While this removed a major obstacle, it was only the beginning of the solution.

"In Japan, tradition is very hard to change," says Taiyo Isaji of Nissho-Iwai Canada and Chairman of the Japanese Lumber and Log Import Association. "Even if the government approves and Canada proves that

PHOTO: J. W. THOMSON

The bulk of B.C. lumber exports to Japan is in the form of squared logs, usually medium squares (30 centimetres square) and baby squares (10 centimetres square). The baby squares are used as is in the Japanese post and beam style of construction, while the larger squares are re-milled in any of Japan's more than 24,000 privately-owned sawmills. Medium and baby squares are the lumber dimensions still preferred by most Japanese carpenters.

PHOTO: COFI

PFC houses are stronger and better, many people in Japan will still want their houses built in the traditional way, simply because that is the way it has been done for generations."

"In some ways PFC housing does not fit the Japanese life-style very well," says Osamu Takanarita, Vancouver representative for Sanyo-Kokusaku, a large Japanese corporation involved in marketing building materials. "In Japan it can get very hot and humid, and large windows are desirable for ventilation. The PFC houses we have seen have small windows. Also, the Japanese like much open space inside a house. The PFC houses we have are broken up by many rooms. But that doesn't really matter. It's up to the people. Whatever the Japanese people want, the builders will build."

The onus is on British Columbians to prove to the Japanese the desirability of PFC houses. The Council of Forest Industries (COFI) under the

Nailing Down PFC and CLS

Platform Frame Construction (PFC) refers to a method of building houses. Canadian Lumber Standards (CLS) refers to the method of identifying and grading lumber according to species, use and size. Five basic lumber dimensions, starting with the two-by-four, are used in all but specially designed Canadian wood buildings.

Platform Frame Construction became popular after the turn of the century. Prior to that time, a method called balloon frame was the most common system of building houses. The wall studs stretched two floors or more above the foundations of the structures. Intermediate floors were fitted into place by attaching them to the tall studs at the appropriate level. It was a tricky and skilled procedure.

Platform Frame Construction dictated that all wall studs were to be only one story high. Additional stories were added to the structure by building a platform on top of the first set of studs, then constructing the walls for the second level on that platform, and so on.

The platform method simplified labour techniques and therefore cut costs. The shorter studs were easier to handle and allowed for more convenient transportation to the job site.

The standardization of the length of wall studs, along with all other lumber used in house construction, was followed by standardizing exactly the width and depth of the wood used. (The actual dry dimensions of today's two-by-fours are 1.5 inches x 3.5 inches).

The introduction of standardized building methods and lumber dimensions needed a system to insure its regulation. Thus, the Canadian Lumber Standards were developed.

Basically, Platform Frame Construction was developed as an economic move to bring down the cost of construction by simplifying building methods. Canadian Lumber Standards ensure a supply of lumber to fit these techniques and ensure a minimum standard of lumber quality and structural integrity.

started from nothing in 1973, and in 1977, 60 million feet of Canadian Lumber Standards dimension lumber was shipped to Japan. If all goes well we should exceed 100 million feet in 1979 and be shipping 200 million feet annually in five years time."

. . . But There Is Still A Ways To Go

Development of this new market for CLS is not complete, nor even assured, as less than 20 per cent of the Canadian lumber market in Japan is CLS. It will take time and continuing effort to realize its full potential. Meanwhile, the B.C. coastal sawmills are not relying solely on the acceptance of CLS for expansion of their Japanese lumber sales. Many are upgrading their existing sawmill facilities or building new ones which can efficiently produce the special lumber sizes required in key overseas markets. MacMillan Bloedel, for example, while committed to promoting CLS sales in Japan, is also investing $54 million in a new mill at Port Alberni on Vancouver Island which will have the flexibility of meeting the demand for baby squares, the specification still preferred by many Japanese and the one which accounts for most of B.C.'s lumber business there.

There are a number of mills already operating in B.C. which specialize in custom cutting the baby squares and the larger medium squares. Many of these companies are Japanese financed and managed. The Mitsubishi Corporation, with substantial interests in the forest industry in this province, buys logs from brokers, has them milled into squares here in B.C., then ships them to Japan and markets them to builders and sawmills. Last year their B.C. lumber operations did $15 million to $20 million worth of business. The company, however, in anticipation of an increase in Platform Frame Construction in Japan, is adjusting.

"Mitsubishi is opening new offices in Japan to market Canadian Lumber Standards dimension lumber," declares Mr. Hitoshi Shimmyo, assistant manager of the company's lumber department.

"Mitsubishi wouldn't do something like that for nothing," says John Stanger, a Trade Development Officer with the Ministry of Economic Development in B.C. "I think it is a clear indication that the Japanese anticipate a growing market for CLS dimension lumber in Japan."

Many Japanese prefer that their single-family dwellings be built according to traditional post and beam construction methods. A growing acceptance of medium density housing, however, coupled with an aversion to high rises, may pave the way for the increased construction of town houses and condominiums built according to North American construction methods using dimension lumber produced in B.C.

COMDP program are in full gear trying to do just that. Ten permanent staff members in Japan are charged with the monumental task of convincing a country of 114 million people to change a major aspect of their lives. As an average two bedroom home in Japan costs approximately $50,000 to build, this is not like trying to sell a new chocolate bar.

If others are pessimistic as to the odds in favour of success, Ken McKeen, Director, Lumber and Shingles at COFI, is not.

"We're getting there," he says. "We

The High Costs of CLS in Japan

CLS lumber arriving in Japan sells at premium prices in the marketplace. Osamu Takanarita of Sanyo-Kokusaku says: "CLS lumber might be more expensive because of the many hands the lumber passes through between the manufacturer and the customer."

Labour and distribution also figure heavily in retail costs of PFC housing. "At present, it costs more to build PFC in Japan," says Mr. Shimmyo of Mitsubishi, "because the carpenters are not trained in this method and the lumber costs more to deliver to the building site."

"The labour problem will solve itself with time," says Ken McKeen of COFI, pointing to the efforts made by Japanese government and business leaders to promote the PFC method: "Our provincial Ministries of Labour and Education have been helpful in getting Japanese education programs started on the PFC method."

A Possible Compromise

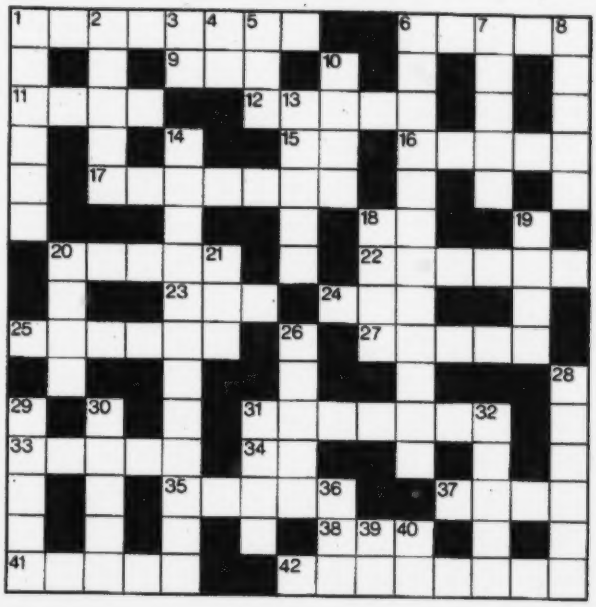
The Japanese people are expressing a growing aversion to high-rise housing. At the same time, there is a growing acceptance of medium density housing (townhouses and condominiums) which lends itself nicely to the PFC construction method using CLS dimension lumber.

Osamu Takamarita of Sanyo-Kokusaku says: "I see that many Japanese feel that any increase in PFC will hurt the Japanese sawmill industries, so they like to stay with the traditional methods for building houses. If traditional methods are used for houses, and CLS for townhouses and condominiums, then both industries will profit."

"The increasing popularity of medium density housing represents a real potential for more use of CLS," says Ken McKeen.

As white pine from the southern United States and spruce from the east encroach on coastal British Columbia's traditional wood products markets along the eastern seaboard of the United States, the need for market diversification of B.C. lumber products becomes ever more important. The European Common Market, especially England, Holland, and France, represents one possible alternative, but Japan is a much better one. And its potential is just beginning to be explored.

ForesTalk Crossword



CROSSWORD: Philip Lanfield

CLUES ACROSS

1 Dark wood, much prized for making furniture (8)
6 Pieces of ground-up wood waste used in pulp mills, not recommended for serving with fish (5)
9 Raw mineral (3)
11 Place where logs are separated (4)
12 Sharp protuberance on some plants (5)
15 Trees are either deciduous — coniferous (2)
16 A hungry man will quickly claim his _____ (5)
17 Rectangular piece of wood used on a roof (7)
18 A short pair (2)
20 Curved wooden component of a barrel (5)
22 To develop and change over millenia as conifers have done since the mesozoic era (6)
23 Tends to encroach, and smother or strangle (in league with creepers) (3)
24 Basic to life matter (3)
25 If the Queen had a cabin it would be her log _____ (6)
27 To impregnate wood with colour (5)
31 Tree-planting implement (7)
33 Large axle; or deep tunnel in a mine (5)
34 Intensive forest management is where it's _ _ (2)
35 Most eucalyptus trees are down _____ (5)
37 A _____ bandsaw is for cutting small logs, or reducing cants from a headsaw (does it perform at a canter?) (4)
38 Another name for killer whale (or Tolkien goblin) (3)
41 A kind of tree with spreading leaves; or a wood tool; or on the level (5)
42 The kind of saw you don't like to get in the mail (8)

CLUES DOWN

1 A kind of boggy land found in the north, formed by deposits of decaying vegetable matter (6)
2 Found on cattle and in logging trucks (5)
3 A busy logger is always on the _ _ (2)
4 Annual return; or a sound Long John Silver always made (2)
5 Fish are often caught with one (3)
6 The care and preservation of the environment and of specific life forms (12)
7 Small island, usually in a river (5)
8 A kind of spruce (5)
10 Body of collected facts and legends on a subject such as the woods (4)
13 Evergreen tree with red berries and prickly leaves (5)
14 The science and art of growing and tending trees (12)
18 Structures, usually wooden, in which animals are kept (4)
19 Smooth and level (4)
20 A tall-standing tree with fastened rigging used in cable logging (4)
21 The first to pick fruit from a tree (3)
26 Washington is the Evergreen _____ (5)
28 This man saws logs (6)
29 To bar or preclude (legal) (5)
30 Flora goes with this (5)
31 Most of the lumber barons were self _____ men (4)
32 The sound of a bell, or a small hill (5)
36 If the Redwood is the king of trees, then the bois rouge would be the _____ des arbres (3)
39 A smaller railroad (2)
40 A logging truck's engine capacity is designated with this measurement (2)

Answers page 22

People

Dirk Brinkman

by Doug Cowell

Lean and bearded, dedicated and hard-working, innovative and highly-skilled, Dirk Brinkman is every inch a tree planter.

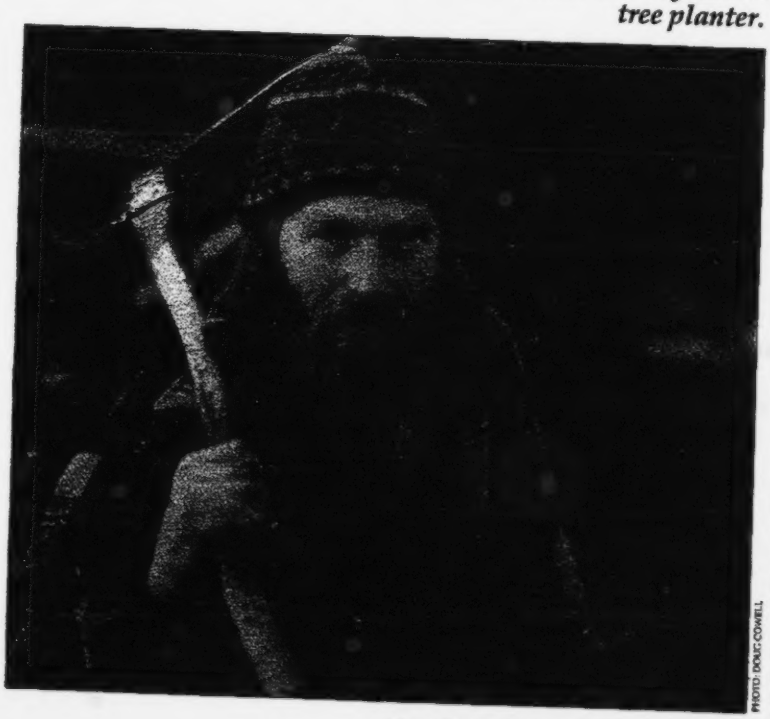


PHOTO: DOUG COWELL

Since Dirk Brinkman first came to B.C. from Ontario 11 years ago, he has had an almost constant involvement with the forests and wild places of the province. He's a restless man, always moving, always pushing new edges. By nature he's a highballer; by reputation he's one of the province's best-known tree-planting contractors.

"I first got into planting in 1970," Dirk recalls. "Three of us wanted to build a sailboat, but all we had between us was $360. We decided to pool our money and try for one of the new tree-planting contracts in the Nelson area."

Contracting out the work of tree planting to independent operators was still in its infancy in those days. Until the late 1960s almost all planting in the province had been done by Ministry of Forests or logging company crews. Planters were hired locally and paid by the hour. Usually, they would live at home and drive to work every day.

"It was estimated to be work for 12 people for 30 days, but we decided to camp on site and try it with just the three of us." When an early snowfall shut down their operation 21 days later, they had 95,000 seedlings in the ground.

"A reforestation official from Victoria showed up when he heard we were planting 1,400 seedlings a day. Back then it was inconceivable that anyone could plant that many and still keep the planting quality up," he recalls with a chuckle. But sure enough, these three highballers were tearing over the slopes putting them in fast and right. Something new was happening in tree planting.

"We earned enough to build our sailboat that winter. When it was done, we flipped a coin to see who got it — and I won. So I took *Chit* and went exploring up the coast the next summer. I got as far north as Bella Bella and Ocean Falls." For 40 days he sailed alone up the inlets and through the islands of his newly-adopted home.

Over the past decade Dirk has continued to criss-cross the province planting new trees for old. But his first job in B.C. — back in 1968 — was somewhat different. That was the time he was hired on to cut down trees in the soon-to-be-flooded reservoir area behind the new Bennett Dam on the Peace River.

"We ran into the Beaver Indians up there and Francis Isaac, their spokesman, took me hunting. He showed me the whole Ingenika country. It was one last tour of their hunting grounds before they were flooded," Dirk recalls.

Afterwards, Francis took Dirk to his new "home." "He made a frame of poles, covered it with thick plastic, and settled in for the winter. I was impressed with the idea and I've been using the same type of shelters for my planting crews ever since.

"I never intended to stay in planting," Dirk muses, "but I've never

found anything better. At first we'd just get a contract, take some friends along to help, and split the take according to how many trees each of us planted. But then I began to get more involved, doing more and larger contracts."

Dirk explains what's involved in his work: "Contracts are let to plant logged-over areas, either by the Ministry of Forests or the logging companies that did the logging. To get these contracts, first you have to find out who's letting them, and where. Then you travel around the province viewing sites and making bids. When you get a contract you have to organize trucks, workers, food, tools, cooks, and shelter — and have the money to finish the project. And that's all before you start planting.

"By 1973 it had become a full-time occupation for my partner, Ted Davis, and me. We had to become more business-like and to begin to act as employers.

"It's become a way of life for many of us now. Both men and women plant, and the kids come along too. In some camps we work out daycare arrangements."

But tree planting is more than just good times. It's long days of gruelling work planting up and down slash-covered slopes with up to 30 pounds of trees in bags on your hips. Sometimes you're working in driving rain with only soggy tents to come back to, or perhaps you're in clouds of bugs where your only escape is to keep moving. Sore backs and feet are occupational certainties.

"We have evolved a unique working situation," Dirk explains. "Every year the regulars come back and there are always newcomers to add new life. It's a tribal experience."

The planters on Dirk's crews are drawn from an informal pool of friends and family. Many of them have planted together for years. They are young, hard-working people for whom physical, outdoor work is important. Typically, they are from the country, own the land they live on, and choose tree planting because its seasonal nature allows them time for their other pursuits. Tree planting's non-mechanical and constructive nature also fits in well with their life values. They are craftsmen and artists, tradesmen and travellers. Maybe you could call them bush hippies.

The overall age and experience of Dirk's crew is increasing every year. Many of them think of themselves as professionals and take pride in the quality and speed of their work. On Dirk's first contract this year 800,000 trees were planted in just five weeks. The company forester, who hadn't anticipated such a high level of productivity, was hard pressed to supply the trees quickly enough to keep the crew working. Understandably, he has already asked Dirk and his crew to plant for him again next year.

Dirk's commitment to tree planting is so complete that he's even redesigned the mattock he normally uses for planting. First, he redesigned the head to make it lighter. Then he rounded the cutting edge and worked out a tempering process with a Victoria blacksmith.

"Some of these tools have planted 100,000 trees and, unlike the standard mattock, they haven't worn down at all. Because they don't form a burr when they hit rocks, they're safe to use in helping the roots into the hole," he explains.

Somehow, living at his usual dead run, Dirk has also found time for adventure. As well as having sailed as far south as Mexico, he is also an experienced mountaineer. "In 1974, three planting buddies and I climbed Mt. Waddington, the highest and one of the most remote mountains in the Coast Range."

In the summer of 1977 Dirk kayaked down the coast of Alaska with another friend he had met planting. Her name is Joyce Murray and she is one of the best planters he's ever seen. Last year they were married and this winter Dirk junior was born.

PHOTO: DOUG COWELL

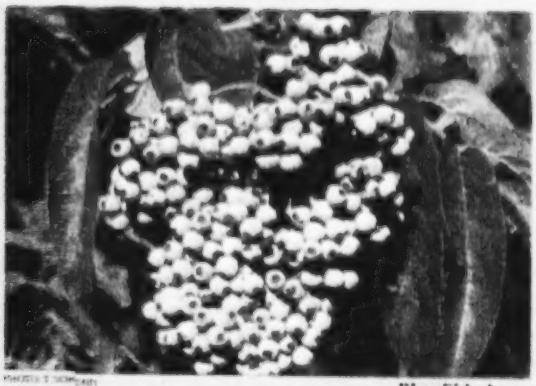
This past spring was Dirk's biggest season yet. At one point he had five crews working on various contracts at the same time. He tore around the province by jet and rented car setting up new camps, negotiating contracts, repairing broken equipment, and, whenever he could, squeezing in a day of planting for himself. Meanwhile, back at the Brinkman's Vancouver apartment Joyce was keeping everything coordinated: working out communication problems, booking flights for planters travelling from one site to another, buying a thousand pounds of food for some remote contract site and making sure it got there, and generally keeping tabs on the whole operation.

When Dirk first got into tree planting almost a decade ago, relatively few people were involved and business affairs usually were conducted on a rather informal basis. Since then, the number of seedlings planted annually in B.C. has almost doubled and tree planting has developed into a substantial enterprise employing over one thousand people. With the growth of the tree planting business Dirk has become deeply involved in the formation of the Pacific Reforestation Workers' Association. Founded last fall, this is a group made up of planters, contractors, members of planter-cooperatives, and some government employees. It was formed to represent planters across the province and further their concerns without polarizing them into employer-employee camps.

"For me, the association is a vehicle for my frustration," says Dirk. "For years I've been watching blunders happen in reforestation but have had no way to help make changes. Now I'm chairman of the association's legal committee, and already we've begun talks with the Ministry of Forests on how to change the forms of contracts. Also, we've got policy changes made in the checking procedures.

"We should be involved in all areas of silviculture. As a group, planters are environmentally concerned and aware people. I'm particularly interested in new forms of planting, such as guaranteed survival contracts and site-specific work."

Still, for all of his many interests and commitments, when tree-planting season rolls around each spring Dirk Brinkman is back out on the hillsides and valley bottoms, seedlings strapped to his side and mattock in hand, doing what he loves to do best — planting trees.



Blue Elderberry

Red Huckleberry

Oregon Grape

The Edible Forest

by Enid K. Lemon

For millions of years man and his ancestors have lived by gathering food. Through experimentation and selection man took the safest and most satisfying plants and fruits and included them in his daily diet. Today, Western man does the bulk of his food gathering in a supermarket, and most of the similarities between the original native plant and the supermarket variety have disappeared through cultivation and hybridization. However, many of these wild, edible plants are still thriving in their natural state. Should you ever decide to embark on your own native food gathering experience, there is a whole world of exciting tastes to enjoy — no further than the nearest forest.

In summer and early autumn the woods are at the height of their food production. Wherever you turn you can see nuts, seeds and berries. (Early civilizations considered an abundant harvest a sign from the gods that man should have no fear of survival through the long winter months.)

Just about everyone recognizes cranberries and blueberries, which can still be found in abundance in their wild state. Both members of the genus *Vaccinium*, they belong to the heather family. Other berries of the *Vaccinium* genus found throughout B.C. include huckleberries, grouseberries and bilberries. Any of these small red, blue or black berries are delicious to eat, either raw or cooked.

Early settlers found the huckleberry to be a great source of sweet sauces, jams, pies and dried fruit. Probably no other wild fruit, with the possible exception of the wild blackberry, played such an important part in the diet of the early pioneers.

Dioscordides, an early military surgeon and naturalist, spoke highly of the medicinal properties of the fruit of various *Vacciniums* which were valued for their astringent qualities. An infusion of bark and root was used as a local application for ulcers, and the berries were made into a syrup to help cure cases of dysentery.

Salal, which is a coast Indian name for a shrub in the heather family (*Gautheria shallon*), is so common in the coastal areas of British Columbia that in places it is almost impossible to penetrate its jungle-like growth. Owing to its great abundance, salal was the most commonly used fruit of the coastal Indians. The berries were dried or eaten raw; but when made into jelly they are truly the "nectar of the gods." At one time, dried salal berry cakes were used as an important source of trade among the Indians.

Kinnikinnick is another member of the heather family; its name, meaning "smoking plant," is taken from an eastern Indian language. Its specific name — *Arctosaphylos uva-ursi* — means "bearberry." Although humans find this berry rather tasteless, bears find them irresistible, as do grouse. The flat taste of the berries is much improved when the berries are cooked or made into jams or jellies. The dried leathery leaves can be used to make tea by adding one teaspoonful to a cup of boiling water.

The blue elderberry (*Sambucus cerulea*) belongs to the honeysuckle family and is a very versatile bush. For hundreds of years, wines, jams and jellies have been made from these very easily gathered berries. Elderberry syrup is delicious on pancakes. When elderberries are eaten fresh they are not very tasty, but once the berries are dried their

flavour is greatly improved. Try them in a cobbler.

The flowers of the elderberry can be dipped into batter and fried as fritters, but first wash them in salty water to remove any creatures that may be hiding in the flower head. The fully expanded blossoms can be steeped for tea, which is said to be good for colds and high blood pressure. Blue elderberries are rich in vitamins A and C, as well as a good source of calcium, iron and potassium. Altogether, the blue elderberry is a most useful shrub.

The other member of the elderberry family, the red elderberry (*Sambucus racemosa*), is said to contain toxic qualities in its berries. This did not appear to worry the coastal native peoples, as the red berries were a widely-used food when cooked. The Thompson Indians enhanced the flavour of salmon by soaking the fish overnight in elderberry juice before baking it.

Oregon grape, or *Mahonia*, is the only native plant in the province which has holly-like leaves, so there is no difficulty in identifying any of the three species of this useful plant. The clusters of bright yellow flowers turn into waxy blue berries. When fully ripe, these berries make a delightful jelly.

The Indians and early settlers made good use of various parts of this attractive plant. The tough, hard roots were crushed to make a bright yellow dye and the berries were made into a tart sauce or cooling drink.

The forest contains a multitude of edible plants, but before rushing out to gather nature's wild produce, pause to consider the following: Before eating anything be sure you have identified it correctly. There are many excellent books to help you choose wisely. If there is the slightest doubt in your mind, take a specimen of the leaves and fruit to someone who can verify the plant's identification. Also, watch for contamination. Do not pick any fruit where spraying has taken place, or on the roadside where the exhaust fumes from passing cars are often absorbed by the plants.

As with any food, moderation is recommended in your consumption of wild plants, but if you use common sense and good judgment, a whole new world of pleasurable tastes awaits you in the edible forest.

Kinnikinnick

Salal

Black Mountain Huckleberry

Kitchen Hints for Forest Edibles

Elderberry Syrup

Put the washed, fresh elderberries in a saucepan, mashing them slightly. Bring them to a boil, strain the juice and return this juice to the saucepan. Add one part sugar to two parts of the juice and boil them together with a little lemon juice. (This syrup can then be stored in your refrigerator.)

Elderberry Cobbler

Mix 2½ cups of dried elderberries stewed with a little water, one cup of sugar and the juice of one lemon, then pour the mixture into a greased casserole. Dot with butter, criss-cross with pie pastry and bake in a hot oven (400°F) until the pastry is brown.

Jelling Jam

When making jam or jelly you will find that most wild berries are short of pectin, a natural substance that causes the jam to jell. You may want to add a commercial pectin, sour apples, crabapples or lemon juice to help the jelling process.

Blueberry Tea

As well as being a tasty forest edible, the blueberry can also be made into a unique tea. All that is required is to dry the leaves and fruit and store them in separate containers. To make blueberry tea, simply put about a half-cup of either ingredient into a teapot and add boiling water.

Oregon Grape Juice

Boil the ripe Oregon grape berries in water, strain, then add sugar to taste. If it is too concentrated, add water. This is just as good as store-bought grape juice, and much cheaper.

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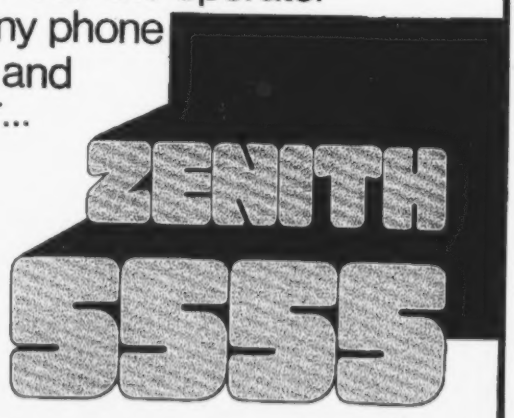

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